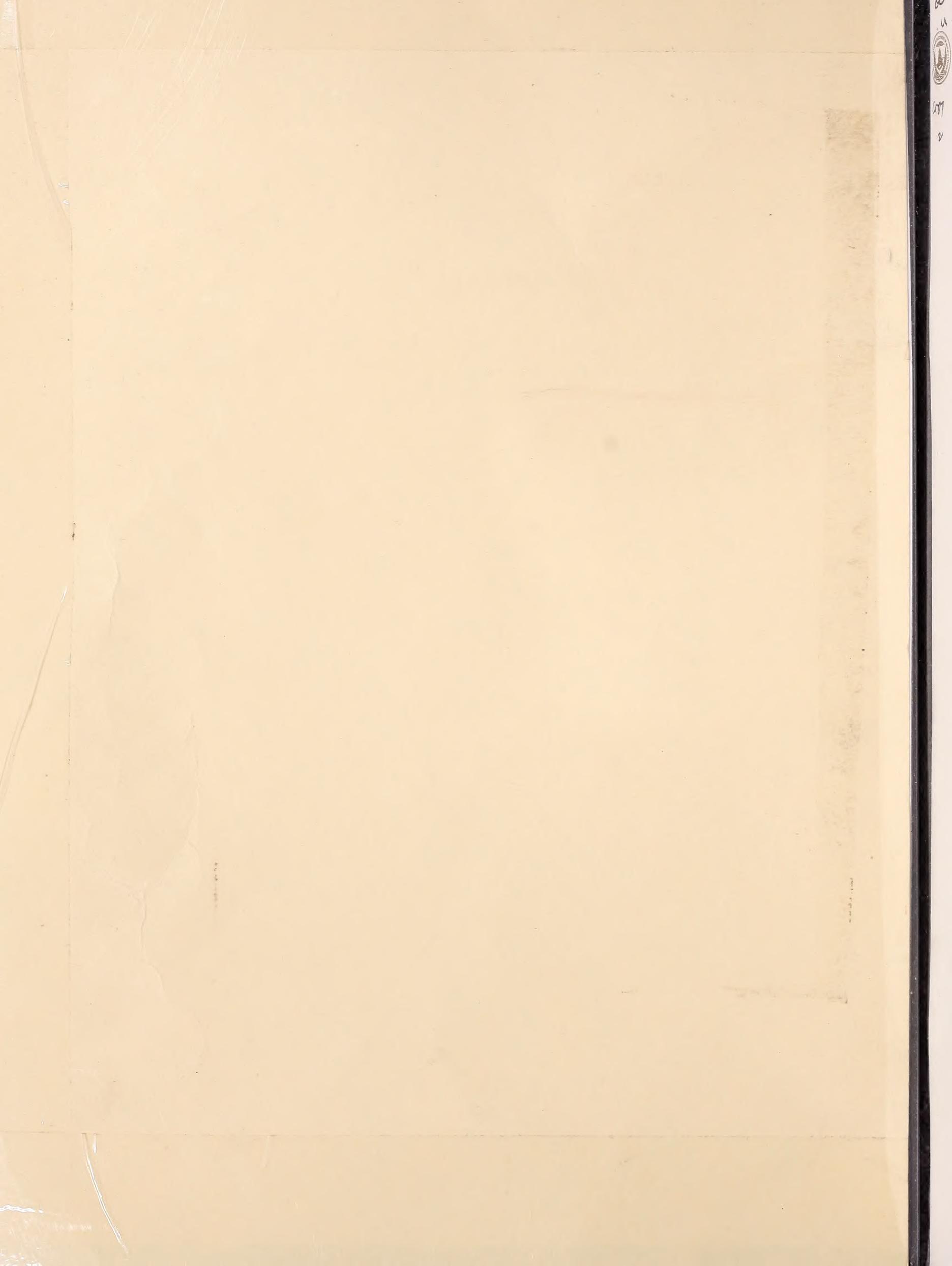


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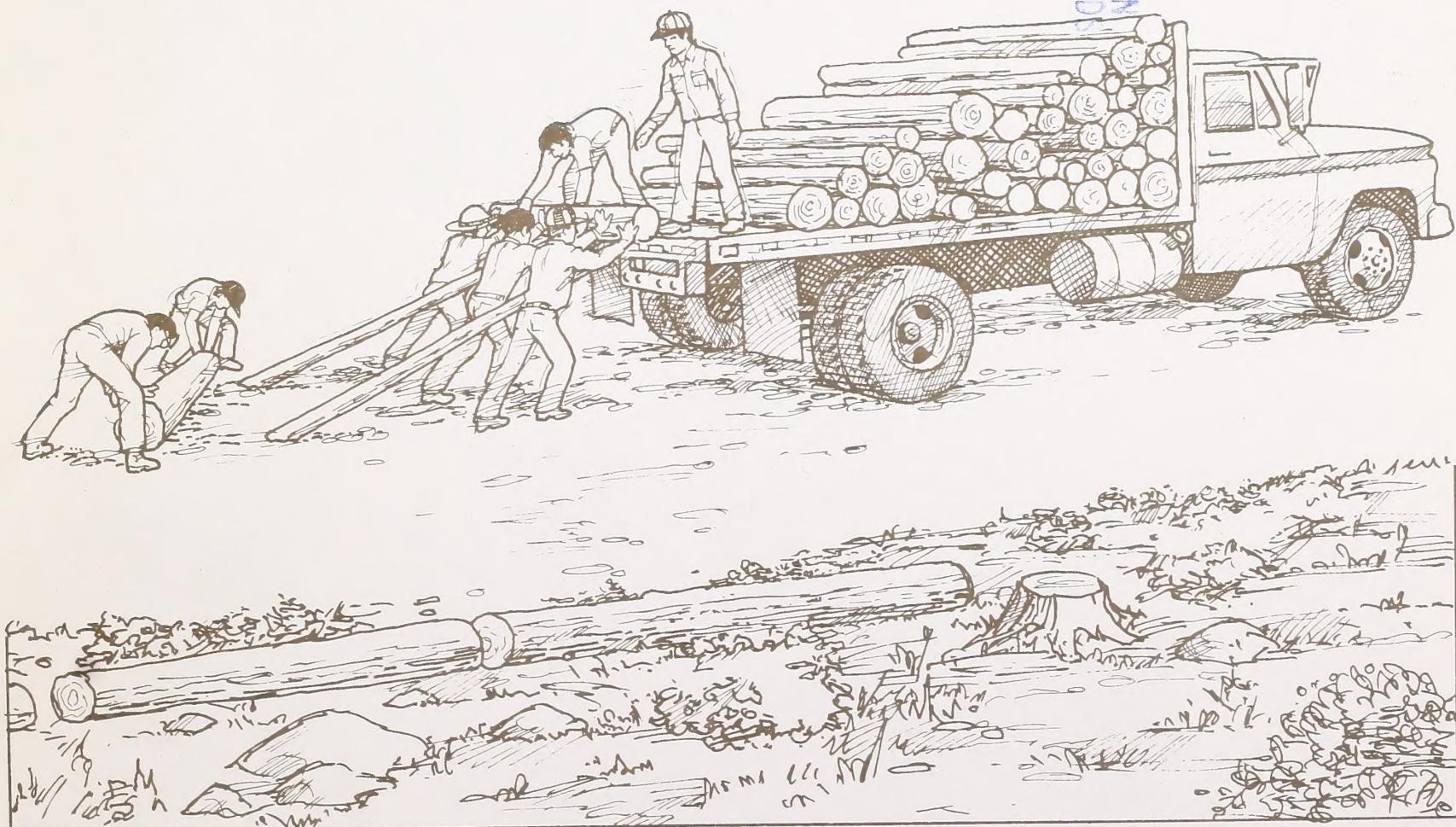
Private Enterprise Initiatives for International Forestry Development

Proceedings of a Workshop and Commissioned Papers

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July 1984

Private Enterprise Initiatives for International Forestry Development

Proceedings of a Workshop and Commissioned Papers

A Perspective from

Roger D. Thorndale

Compiled by

David B. Thorne and

Jan G. Laarman and

George F. Dutrow

A Perspective from

Larry Seltz and Jerry L. Johnson

Sponsored by

Karen M. Kinsler

Southern Center for

Forest Economics Research

USDA Forest Service

Southeastern Forest Experiment Station

North Carolina State University

Duke University

November 1982

Mission Valley Inn and Conference Center
Raleigh, N.C.

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Twelve papers that discuss ways in which the U.S. Agency for International Development (AID) can promote indigenous private enterprise in the forest-based sectors of developing countries. Includes incentives for private sector, role of public sector, possibilities of joint enterprises; outlines need for management training, international trade, technology transfer; describes methodology of wood products assessment in developing countries, analyzes financial incentive programs.

KEYWORDS: International trade, joint venture, technology transfer, forest industries, AID, management training.

Papers are published in the proceedings as they were submitted by the authors in camera-ready form. Authors are responsible for the content of the papers; they do not represent the views of the U.S. Department of Agriculture.

Contents

Private Enterprise, Forestry, and AID	1
Jan G. Laarman and George F. Dutrow	

Part I--Workshop Proceedings

A Perspective from AID	4
Roger D. Moeller	
A Perspective from a U.S. University	7
David B. Thorud and James E. Bethel	
A Perspective from a Forestry Consultant	11
Larry Bell and Jerry T. Davis	
International Trade in Forest Products	14
Harold W. Wisdom	
Management Training for Forest Industries	21
J. E. Seve	
Succeeding in Foreign Joint Ventures	26
Norman E. Johnson	
Technology Transfer in the Forest Industries	32
Harvey W. Wallender III	

Part II--Commissioned Advisory Papers

Private Enterprise in the Forestry Sector: Directions for AID	41
Hans M. Gregersen	
Screening Developing Countries for Forestry Projects: A Methodology	49
J. E. de Steiguer, Gary D. Kronrad, Catherine A. Albers, and Patrick B. Durst	
The Choice of Developing Countries for Forestry Projects	53
P. A. Harou	
How Developing Countries Can Assess Their Potential for Wood Products Exports to the United States: A Methodology	56
James E. Granskog	
Analysis of Financial Incentives Programs to Encourage Forestry Development on Private Lands in Latin America	62
Clifford A. Hickman	

Abbreviations of Organizations

ADB	Asian Development Bank	IHPA	Imported Hardwood Products Association
AID	U.S. Agency for International Development	PICOP	Paper Industries Corporation of the Philippines
EEC	European Economic Community	UNIDO	United Nations Industrial Development Organization
FAO	Food and Agriculture Organization of the United Nations	USDA	U.S. Department of Agriculture
IDB	Inter-American Development Bank	USITC	U.S. International Trade Commission
IDCA	U.S. International Development Cooperation Agency	USTC	U.S. Tariff Commission

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The seven papers in Part I of this volume were delivered at a workshop held in November 1982 at the Mission Valley Inn and Conference Center, Raleigh, N.C. The workshop was organized by the Southeastern Center for Forest Economics Research (SCFER) in support of its research project for the United States Agency for International Development (AID). The editors extend their sincere appreciation to the several persons whose dedicated efforts made the workshop possible, to the participants and moderators themselves, to the SCFER team of discussants, and to the authors of the auxiliary papers which make up Part II of this publication.

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WORKSHOP PARTICIPANTS

Larry Bell, Senior International Project Director, Davis Forestry International, Monticello, Ark.

William Bentley, Professor, Department of Agricultural Economics and Renewable Natural Resources, University of Connecticut, Storrs, Conn.

Daniel Deely, Forestry Officer, Office of Forestry, Environment and Natural Resources, Agency for International Development, Washington, D.C.

Eric Ellwood, Dean, School of Forest Resources, North Carolina State University, Raleigh, N.C.

James Granskog, Principal Forest Economist, USDA Forest Service, Southern Forest Experiment Station, New Orleans, La.

David Harcharik, Latin America Coordinator, Forestry Support Program, USDA Forest Service, Washington, D.C.

John Hendee, Assistant Director, USDA Forest Service, Southeastern Forest Experiment Station, Asheville, N.C.

Benjamin Jayne, Dean, School of Forestry and Environmental Studies, Duke University, Durham, N.C.

Norman Johnson, Vice President for the North Carolina Region, Weyerhaeuser Company, New Bern, N.C.

Kathleen McNamara, Forestry Officer, Asia Bureau, Agency for International Development, Washington, D.C.

Roger Moeller, Business Development Specialist, Bureau for Private Enterprise, Agency for International Development, Washington, D.C.

Samuel Radcliffe, Vice President, George Banzhaf and Company, Milwaukee, Wis.

Juan Seve, Planning Coordinator for the Fiber Resources Division, Container Corporation of America, Chicago, Ill.

William Siegel, Project Leader, Forest Resources Law, USDA Forest Service, Southern Forest Experiment Station, New Orleans, La.

Jerome Storey, Jr., Director, Bio-Energy Program Support Group, Office of Energy, Agency for International Development, Washington, D.C.

Abu Talib, Project Leader, Energy Conversion and Utilization, Mitre Corporation, McLean, Va.

David Thorud, Dean, College of Forest Resources, University of Washington, Seattle, Wash.

Jack Vanderryn, Director, Energy and Natural Resources, Agency for International Development, Washington, D.C.

Harvey Wallender III, Senior Partner, Burkholder-Wallender International, Darien, Conn.

Casey Westell, Jr., Director, Industrial Ecology, Tenneco, Inc., Houston, Tex.

Harold Wisdom, Associate Professor, Department of Forestry and Forest Products, Virginia Polytechnic Institute and State University, Blacksburg, Va.

James Yoho, Professor of Industrial Forestry, Department of Forestry and Natural Resources, Purdue University, West Lafayette, Ind.

SCFER DISCUSSANTS

Ed de Steiguer, Research Forester, USDA Forest Service, and Adjunct Assistant Professor, North Carolina State University

Patrick Durst, Graduate Student, North Carolina State University

George Dutrow, Project Leader, USDA Forest Service, and Adjunct Associate Professor, Duke University

William Hyde, Assistant Professor, School of Forestry and Environmental Studies, Duke University

Gary Kronrad, Postdoctorate, North Carolina State University

Kerry Krutilla, Graduate Student, Duke University

Jan Laarman, Assistant Professor, School of Forest Resources, North Carolina State University

David Newman, Graduate Student, Duke University

Jack Royer, Assistant Professor, School of Forestry and Environmental Studies, Duke University

Ford Runge, Assistant Professor, Department of Political Science, University of North Carolina

Michael Vasievich, Research Forest Economist, USDA Forest Service, and Adjunct Assistant Professor, Duke University

CONTRIBUTING AUTHORS

- Catherine Albers, Graduate Research Assistant, North Carolina State University, Raleigh N.C.
- Larry Bell, Senior International Project Director, Davis Forestry International, Monticello, Ark.
- James Bethel, Professor, College of Forest Resources, University of Washington, Seattle, Wash.
- Jerry Davis, President, Davis Forestry International, Monticello, Ark.
- Ed de Steiguer, Research Forester, USDA Forest Service, and Adjunct Assistant Professor, North Carolina State University, Raleigh, N.C.
- Patrick Durst, Graduate Research Assistant, North Carolina State University, Raleigh, N.C.
- George Dutrow, Project Leader, USDA Forest Service, and Adjunct Associate Professor, Duke University, Durham, N.C.
- James Granskog, Principal Forest Economist, USDA Forest Service, Southern Forest Experiment Station, New Orleans, La.
- Hans Gregersen, Professor, Department of Forest Resources, University of Minnesota, St. Paul, Minn.
- Patrice Harou, Assistant Professor, Department of Forestry and Wildlife Management, University of Massachusetts, Amherst, Mass.
- Clifford Hickman, Principal Economist, USDA Forest Service, Southern Forest Experiment Station, New Orleans, La.
- Norman Johnson, Vice President for the North Carolina Region, Weyerhaeuser Company, New Bern, N.C.
- Gary Kronrad, Postdoctoral Research Associate, North Carolina State University, Raleigh, N.C.
- Jan Laarman, Assistant Professor, School of Forest Resources, North Carolina State University, Raleigh, N.C.
- Roger Moeller, Business Development Specialist, Bureau for Private Enterprise, Agency for International Development, Washington, D.C.
- Juan Seve, Planning Coordinator, Fiber Resources Division, Container Corporation of America, Chicago, Ill.
- David Thorud, Dean, College of Forest Resources, University of Washington, Seattle, Wash.
- Harvey Wallender III, Senior Partner, Burkholder-Wallender International, Darien, Conn.
- Harold Wisdom, Associate Professor, Department of Forestry, Virginia Polytechnic Institute and State University, Blacksburg, Va.

PRIVATE ENTERPRISE, FORESTRY, AND AID

Jan G. Laarman and George F. Dutrow

BACKGROUND

In 1982 the United States Agency for International Development (AID) asked the Southeastern Center for Forest Economics Research (SCFER) to make recommendations on the design of a multiyear forestry project. AID requested that SFCER outline ways in which AID can promote indigenous private enterprise in the forest-based sectors of developing countries as a means to foster national economic development.

AID's private enterprise philosophy is predicated on the notion that greater reliance on free and competitive markets will assist AID's recipient countries to meet the basic human needs of their poor majorities through sustained, broadly based economic growth. Private enterprises are defined as profit-oriented economic units producing goods and services with means of production that are in the hands of individuals and businesses, not governments.

A recent AID policy paper entitled "Private Enterprise Development" states three premises behind the renewed emphasis on private enterprise: (1) economic growth is central to the alleviation of poverty, (2) private enterprise stimulates economic growth most quickly, and (3) a free and competitive market environment is conducive to private enterprise. That policy paper also contends that allocations of resources through competitive markets are generally more equitable, over time, than are allocations made by governments.

AID has initiated a number of responses to the Reagan administration's announcement of its intention to increase the participation of the private sector in the development process. For example, AID is reviewing country programs and specific projects to determine the degree to which they engage private enterprise. Moreover, AID has created a Bureau for Private Enterprise to symbolize the commitment to this strategy and to ensure that new pro-

grams and policies conform to the private enterprise outlook. AID's contract with SFCER to identify means of promoting private enterprise in forestry is consistent with these directives.

In November 1982, SFCER convened a workshop to elicit expert views on how to encourage private enterprise initiatives for forestry development. Participants from business, government, and the academic community were selected on the basis of their professional expertise and their interest in the international dimensions of forestry development. Strategies and goals for AID were addressed by Moeller, Thorud and Bethel, and Bell and Davis. Specific project themes for AID were described by Wisdom, Seve, Johnson, and Wallender. These presentations have been incorporated into this volume.

Not all of the workshop speakers brought papers that could be incorporated here. Although the presentations by Westell, Talib, and Storey did not lend themselves to publication in this volume, the editors are no less indebted to these three individuals for their willingness to share their time and ideas.

To broaden the dimensions of the workshop itself, SFCER commissioned five special papers on various topics of relevance to the private enterprise theme. These commissioned papers, which vary widely in the scope of their subject matter, form Part II of these proceedings.

WORKSHOP PAPERS

The papers in this volume exemplify the diversity of both issues and viewpoints on private enterprise in forestry development. The following introductory comments will serve to highlight the varied contributions of each of the authors.

Roger Moeller, representing AID's Bureau for Private Enterprise, begins by defining

the difference between public and private enterprises. He then divides private enterprises into three types: proprietal firms, entrepreneurial firms, and managerial firms. This distinction is vital, since donor programs aimed at one type of firm may not be effective in reaching the other types. Moeller points out that AID did not "discover" private enterprise. Rather, what has been discovered is that AID should work with both governments and private enterprises to develop a country's economic system in all of its elements.

Representing a major U.S. university and a distinguished forestry school, David Thorud and Jim Bethel present their views on the U.S. supply of technical assistance for forestry development. Thorud and Bethel contend that U.S. forest products companies and consulting firms can offer the greatest expertise in project feasibility studies, assessment of timber supply, development of factory management skills, product marketing, and choice of research and development projects. In contrast, the U.S. forestry schools are the most capable suppliers of forestry-related education and research. This suggests that at least some of AID's technical assistance for forestry should be organized as joint ventures between U.S. businesses and U.S. universities to blend business experience with teaching competence.

The perspective of Larry Bell and Jerry Davis is that of a forestry consulting firm which necessarily treats forestry as a business. Bell and Davis offer a number of guidelines for AID from the businessman's viewpoint. They agree with Thorud and Bethel that analysis of forestry project requires experts from businesses as well as campuses. They also assert that AID's assistance to forestry-related businesses in recipient countries should depend on close coordination with U.S. businesses, as well. Success in AID's efforts to promote private enterprise initiatives for forestry--or for any other commercial sector--will be signaled by the extent of positive response in the recipient country's business community.

Harold Wisdom examines a specific area for possible AID attention, that being the stimulation of forest products exports

from the developing countries. Wisdom's experience with international trade leads him to conclude that AID should not necessarily assist recipient country governments to intervene in the market-place. Rather, the objective should be to remove trade barriers in order to allow the market to allocate forest products competitively and efficiently. An AID action program could focus on one or more of several components. Among them are improvement of port facilities, improvement of wood products packaging for ocean transport, market analysis of the long-term demand for forest products exports, preparation of profiles of the major world markets for tropical woods, provision of long-term credit for forest products exporters, production of extension publications on tropical woods, and careful evaluation of tariff and nontariff barriers to trade of forest products. Wisdom believes that AID should not become directly involved in the establishment of a marketing center for tropical woods.

Juan Seve, Container Corporation of America, addresses management training for forest industries personnel in developing countries. The needed skills are not only technical knowledge in wood utilization, but also managerial capabilities in accounting, finance, marketing, and international trade. Among the various management training projects in which AID could help private forest industries, several have high potential. Seve suggests graduate courses in forest industries management, refresher courses for experienced managers, overseas graduate courses in forest industries management, locally arranged management seminars, and the introduction of managerial subjects into undergraduate forestry curricula.

Norman Johnson of Weyerhaeuser draws on considerable experience to address the subject of organizing foreign joint ventures in forest products industries. He emphasizes the critical importance of selecting the right overseas partner, of building trust with that partner and with the government, of cultivating patience, courtesy, and cultural sensitivity, and of communicating clearly. Managers for overseas assignments must be selected carefully through multiple interviews, preferably with the spouse included. Training of

counterpart personnel must commence at the inception of the joint venture and continue through the life of the project. AID can do much to help bring business partners together by assessing needs in its recipient countries and then making this information available to interested U.S. firms. AID can also analyze past joint ventures for lessons learned, can facilitate meetings of proposed U.S. partners with key government officials, and can help educate government officials on the positive role that private industry can play in forestry development.

Harvey Wallender, partner in a private firm which facilitates technology transfer from the United States to developing countries, analyzes a host of technology transfer routes for forestry and forest-based industries. He divides technology into five categories and identifies various suppliers for each category. Examples of technology transfer in the forest products industries suggest that assistance often tends toward management and training activities, i.e., technology software as much as hardware. Wallender critiques the strengths and weaknesses of U.S. technology suppliers, many of whom could be playing a much more active role than they are currently. An AID project to improve technology transfer in forestry will need to direct itself to the whole array of technology types in some systematic fashion. AID could encourage new networks of U.S. public and private institutions to assist the ultimate technology user to identify clear-cut opportunities for technology improvement, and to gain access to industry-specific and firm-specific technical assistance. Intermediaries and brokering organizations could play a decisive role in organizing and directing these networks.

COMMISSIONED PAPERS

In a broad and well-reasoned overview, Hans Gregersen, of the University of Minnesota, identifies several AID project activities to overcome barriers to expanded private enterprise in the forest based sectors of developing countries. Gregersen recommends markets and marketing as a potential AID focus, since weak markets are a primary inhibitor to the growth of private enterprise. Additionally, Gregersen maintains that project

activities should not be narrowly concentrated on timber production. An implementation package could begin with a small set of target countries in which AID carries out forestry sector reviews. These reviews point out existing barriers to private enterprise in terms of lack of knowledge, lack of ability, and lack of interest. Actions are then proposed to surmount those barriers by addressing opportunities in education and training, policy design, incentives programs, financing, applied research, and so forth. The exact mixture of the elements chosen depends on the country context.

Ed de Steiguer, Gary Kronrad, Catherine Albers, and Patrick Durst present a screening technique to determine the suitability of developing countries for AID's forestry projects, including those with a private enterprise dimension. They propose a checklist method similar to that used for describing a country's investment climate. Their technique requires assessment of the quantity and quality of land, labor, capital, and entrepreneurship. It also requires investigation of political and legal factors.

Patrice Harou, University of Massachusetts, likewise addresses the question of country selection. Harou weighs demographic factors, performance of the national economy, importance and characteristics of the forest cover, and demand and supply of food, water, and energy. AID's selection of countries also will be heavily influenced by institutional and technical constraints.

Cliff Hickman, Southern Forest Experiment Station, outlines potential project activities to analyze and further develop financial incentives programs for forestry and reforestation on private lands in Latin America. These incentives include tree planting subsidies (i.e., public-private sharing of reforestation costs), long-term credit, and favorable tax treatment. Several Latin American countries already have such incentives in place; others are considering the adoption of similar measures. AID needs to evaluate, for a selected set of Latin American countries, the effectiveness of the existing programs. This evaluation could become the basis for possible recommendations and technical assistance to promote other programs elsewhere.

A PERSPECTIVE FROM AID

Roger D. Moeller

First, let us differentiate between the public sector and private sector by very simply stating that the public sector is government--local, national, and international. The private sector is nongovernment, one person or a group of people--local, national, or international--with goods, services, or philanthropic outputs. A "public enterprise" is an institution organized and operated to produce a good or service on a direct, self-sustaining basis, owned and controlled by one or more governments. A "private enterprise" has the same purpose as a public enterprise, but it is owned and controlled by an individual or group of individuals.

Perhaps a more important, useful means of differentiation should be highlighted. As a general rule, public enterprises are not directly responsive to market forces, whereas private enterprises normally are directly subjected to market forces. A private enterprise has one other characteristic that differentiates it from most public sector and some private sector institutions--its demise is the direct and automatic consequence of economic failure.

Private enterprises fall into three general types: proprietal firms, entrepreneurial firms, and managerial firms.

PROPRIETAL FIRMS

The private sector landscape in almost all developing countries is dotted with proprietal firms producing a wide variety of goods and services. From the coffee farmer in Costa Rica to the moneylender in Thailand or the tailor in Cameroon, these proprietal firms are marked by small size, the importance of family labor, the low level of capital employed, and the limited demands made on the owner's managerial ability and technological expertise.

For the most part, proprietal firms supply small local markets with valued goods and services; they tend to be labor intensive and have low levels of labor

productivity. Thus, in Nigeria, proprietal firms may produce only 5 percent of manufacturing output but employ 90 percent of the labor force in the manufacturing sector. More broadly, while proprietal firms, be they farms, industrial firms, or service enterprises, often produce a small share of total GNP in any developing country, they do provide a livelihood for the majority of the people.

These firms represent the prototype of the competitive firm. They respond quickly to market incentives, economize on scarce resources, and enter and exit the market freely. Because the technology is simple (in industrial and service establishments) or because land markets are rudimentary (for agricultural enterprises), there is little scope for expansion of individual firms. The industrial sector (e.g., tailoring) may expand or contract in response to market forces, but rarely do individual proprietal firms expand.

ENTREPRENEURIAL FIRMS

The economic history of the West, particularly of Great Britain and the United States, is dominated by the entrepreneurial firm. This is the type of firm that rapidly expands in response to a new technology or a new market opportunity. The Industrial Revolution is thought of in terms of men such as Richard Arkwright, Eli Whitney, and James Watt. The entrepreneurial firm has thus been considered to be the backbone of industrialization and modernization, the institution that converts savings into new, risky, and productive ventures, the engine of growth. In fact, however, latecomers to the Industrial Revolution depended less on the entrepreneurial firm than on the large managerial firm, usually developed through a partnership of government and private interest.

MANAGERIAL FIRMS

Most modern economies are dominated by large, corporate firms which separate ownership from management and institutionalize decisionmaking. This is certainly true of most corporate firms in developing countries.

While there may be little difference in behavior between entrepreneurial and managerial firms, the differences in organization and style imply differences in constraints. For instance, entrepreneurial skills--mobilizing capital, perceiving bold new opportunities, and taking daring risks--are different from managerial skills--organizing, planning, calculating the benefits from different management choices, and managing cash balances with a sharp pencil. The critical managerial decision is expansion; the critical entrepreneurial decision is establishment. Generally, given their existing resources, managerial firms have an easier time obtaining capital than entrepreneurial firms.

THE PROFIT MOTIVE

These enterprises not only function within marketplaces but also within a complex legal, regulatory, and traditional context. The marketplaces consist of the relationships between the elements of the productive system. A typical enterprise will function in many marketplaces simultaneously as a seller, buyer, or broker.

The private enterprise will also function within a policy milieu. As a useful generality, the policies of major interest derive from laws, regulations, and how these are applied. In addition, the private enterprise must, in the main, conform to cultural and traditional values derived from a society's organizational and ethical precepts.

Flexibility and responsiveness quickly become the most desirable attributes of the private enterprise so that it may survive in a marketplace defined by the productive system, work under policies formulated largely by governments, and conform to cultures and traditions. No wonder the rewards of profit are necessary!

ROLE FOR AID

The private enterprise initiative of the Agency for International Development is not the result of the "discovery" of private enterprise. What has been discovered is the relationship between the existence of a viable private enterprise system and a country's rate of development. It is also the recognition that the roles of governments, private enterprises, and other private institutions need not--indeed, must not--be adversarial or antithetical. However, we cannot assume that assistance to one element of a country's economic system automatically flows both laterally and vertically to other elements. On the contrary, we must assume a responsibility for developing the system in all of its elements. Some elements can be approached directly and some indirectly, but all must be included one way or another.

AID's overall goal is economic growth with equity (this implies participation, not equality). We believe this can be done by the productive use of a country's resources, a process in which the increases in productivity are the ladder rungs for growth. We work toward increasing the productivity of capital, natural resources, technology, and labor within a system that returns a fair share of the productivity increase to the owner of the factor supplied, to the consumer of the product or service, and to society as a whole. This translates into attractive returns on capital, good rents on land, good market prices for materials, good returns for know-how, as well as good employment at better than subsistence wages. To achieve these, we must have both policies and institutions that encourage and respond to private enterprises.

How can AID help in developing policies and institutions? AID can assist in analyzing existing policies and regulations and in making recommendations for retention, changes, and additions. This should be done by seeking the participation of national private entities at an early stage and passing the task of long-term followup to these entities. These entities must have a working interest in

the effort; therefore, they should be a private institution with private enterprise interests. AID can support the needed institutions directly or partially, through peer institutional connections between host country and U.S. counterparts.

Other institutions we should concentrate on are those that train for management and vocational skills; those that allocate capital, particularly equity; those that create and transfer technical and general productive expertise; those engaged in information exchange; and those that regulate. To the extent feasible, these institutions should be in the private sector and closely related to the interests of private enterprises. AID's program should be heavily biased toward furnishing "front end" support in a way that attracts or leverages private support. Projects should be targeted at removing constraints and should be as broadly responsive as feasible. Where possible, projects should avoid governmental channels for assistance to private enterprise. Subsidies should be considered only for short times and should be

carefully targeted. A major resource for specialized knowledge and capital in this endeavor is U.S. private enterprise. In return, a viable private enterprise system in developing countries presents U.S. businesses with trade, investment, and technology transfer opportunities.

In general, projects should be designed with full institutional breadth and should be vertically integrated. For example, a reforestation project might include all elements from tree choice to tree harvesting (vertical integration) as well as policy, research, and planning functions (lateral breadth).

The criteria for success are simple to state but more difficult to measure. Success is achieved when private enterprises produce goods and services for free and open markets in a way that permits the enterprises to be self-sustaining and growing, and that demonstrates shared increases in productivity.

A PERSPECTIVE FROM A U.S. UNIVERSITY

David B. Thorud and James S. Bethel

The U.S. forestry community has considerable professional expertise that would be useful in providing technical assistance in forestry to developing countries. The organizations that encompass this talent include the Federal and State forest resource agencies, forestry schools and colleges, forest products industries, and forestry consulting firms. Because forestry has not been a major component of the U.S. bilateral aid program, significant provisions have not been made to utilize these organizations, although individuals associated with them have been recruited for specific project assignments. This paper examines possible roles in forestry technical assistance for units in private enterprise, namely forest products firms and forestry consulting firms.

THE ROLE FOR PRIVATE FIRMS

Technical assistance in forestry takes many forms, and the needs for technical assistance vary from country to country. In the arid countries of the Sahel, the required forestry assistance may be to help establish fuelwood plantations, plantings to conserve soil and water, or range management for livestock. In the countries of Southeast Asia or northern South America, the forestry assistance of greatest value may be help in the development of a forest products industry that can be supported by the resource base and that is economically viable. Where institutions are to be brought into forestry assistance programs, they need to be matched to the tasks to be performed. Assistance programs that involve forestry for park establishment, wildlife protection, watershed management, and the like, can probably be better handled by U.S. public agencies than by forest products companies or forestry consulting firms. Private enterprise, on the other hand, can make major contributions to forestry advancement in those developing countries where the forest resource base is adequate to support major wood-processing industries.

These countries tend to be in the humid rather than the arid tropics. Generally, they are countries with large but undeveloped forest resources. They are countries where the forest-based industry, if it exists, is often inefficient, and where essential professional and technical skills are generally lacking.

The developing country whose forest base is relatively large and accessible usually has the technology required to meet its own domestic needs for wood. But as Bethel et al. (1982) have noted, the less-developed country confronts the need for advanced forest technology when:

1. The demand for wood for local consumption exceeds the ability of natural, secondary or recovery forests to supply it.
2. The principal demand for wood for domestic use is in urban areas remote from the forest supply base, thus requiring the development of an elaborate transport and marketing system.
3. The tropical country wants to engage in the manufacture of high technology products such as high-grade lumber, veneer and plywood, particleboard, fiberboard, or pulp and paper.
4. The tropical country wishes to enter the world market with products that can compete in price and quality with those from other countries. Lumber and timber sold in world markets must meet specifications for dimension, grade, moisture content, and so forth, acceptable to the buyer. This requires the correct mix of reliable equipment that is properly installed, maintained, and operated. If the product is to be sold at a competitive price on the world market, the manufacturing must be efficiently performed by a well-managed organization.

Through the transfer of state-of-the-art technology, the private firm in the U.S. forestry community can make a major contribution to developing countries.

Forestry assistance of this kind has been provided over a long period of time. A common method of providing for transfer of technology is for multinational corporations to engage in forestry enterprises in developing countries either directly or through a joint venture with a domestic firm or individual. When technology is transferred by means of a multinational corporation, it is important that all parties to the operation--U.S. partner, domestic partner, and host government--understand the goals and rewards associated with each participant. These may be different and they may or may not be compatible.

Bethel et al. (1982) pointed out that a corporation may expect a venture to stand alone as a profit-making operation or to provide raw materials for processing elsewhere. Differing time frames are a common problem, too. The host country or domestic partner may wish to maximize income immediately, whereas the U.S. partner may be interested in a long-term sustained supply of a raw material or commodity to complement its other products. The reverse may be true as well. In any case, when technology transfer is accomplished through direct involvement, the corporation generally expects to be rewarded by profits.

Private companies, whether they are forest products industries or forestry consulting firms, can provide technical assistance through sale of technical services. It makes little difference whether payment for the services is made directly by a domestic corporation, by the host country, or by a bilateral or multilateral assistance program. In any case, it is important to recognize that a firm's technological tools are assets that are not given away.

Rewards may take several forms. Some firms may engage in technical assistance as a direct income-generating activity. This would likely be the incentive for a consulting firm. Another reward may be the acquisition of experience in a new

setting that could ultimately result in profits from future investments. Another incentive could be the opportunity to explore the feasibility of a joint venture at some future time. Still another incentive might be a way to develop a material supply to complement the company's regular product mix.

In preparing this paper, we had insufficient time to reach a substantial sample of U.S. forest-based enterprises to ask how they would perceive their potential involvement in developing countries, but we did talk with persons in a large firm, a medium-size firm, and a small consulting firm. The results of these conversations are presented for anecdotal purposes.

The individual from the large firm indicated serious reservations about "capital exposure" in many of the developing countries where there is political instability or naivete with respect to the global economy. He indicated that the high risks associated with investment in developing countries would usually tip the scales in favor of alternative investments in the United States. This judgment is often reinforced when venture capital generated in developing countries by citizens of those countries is exported to the United States for safe investment. The representative of the large firm indicated that his company might be willing to provide expertise in the form of personnel if some other organization such as the World Bank or one of the regional development banks provided the financing. In other words, this company would be willing to "export technical skills" for a fee. From the vantage point of this large company, such an involvement was viewed as an opportunity to monitor political and economic development without risking corporate capital. The information obtained could influence future decisions of the corporation and might lead to direct operational involvement when the climate for such investment became good.

The individual from the medium-size firm also expressed concern about exposure of capital and indicated no interest in such high-risk investments given the alternatives at this time. This corporate official expressed no interest in selling technical services but did state that the

company would be willing to provide personnel for short periods of time (for expenses only) as a sort of charitable contribution to a good cause. This individual noted that such personnel have to be carefully selected in terms of personality and ability to adapt. Short assignments do not permit consultants to become thoroughly aware of cultural constraints. On the other hand, long assignments might be detrimental to career advancement for a promising young professional. This corporate representative also asked the question: Why should U.S. forest industry help develop its competition?

The representative of the forestry consulting firm indicated interest, noting that flexibility in personnel was important. He suggested that consultants have to work with the local people and be adept at applying simple technologies.

STRATEGIES TO PROVIDE TECHNICAL ASSISTANCE

One of the reasons for the hesitancy to become more involved in assistance to developing countries is that U.S. corporate experience, for the most part, has been with high-risk ventures. Large corporations from other parts of the world have found that involvement in development can be worthwhile. Additionally, U.S. firms, government agencies and universities are handicapped because of the lack of mechanisms for providing professionals with education and experience in tropical forestry. Unlike many of the industrialized countries, the United States does not support education in tropical forestry. It does not participate in the FAO associate expert program nor has it established a comparable program in AID.

The Society of American Foresters has recently become a coordinator of an effort to define how the professional forestry community in the United States can help advance forestry in the developing countries. The idea is to bring together universities, private industries and government to define roles and to develop action plans. This positive step could give private enterprise a much stronger voice in development assistance.

Assuming as we do that AID can solve the institutional and contractual problems to

engage U.S. private firms in forestry assistance, it is worthwhile to examine some areas that are particularly ripe for involvement. Among the areas where the U.S. forest products industries and forestry consulting firms can make valuable contributions to the advancement of industrial forestry in the developing countries are the following:

Feasibility Studies for Projects and Programs. Some forestry development programs in the developing countries are doomed to failure from the start because they are either technologically or economically infeasible. Private firms are particularly well equipped to assess feasibility and to furnish the guidance needed to correct deficiencies.

Industrial Forest Materials Supply Base. Perhaps the single most important cause of failure of industrial forestry ventures in the tropics has come from not matching the timber supply base to the manufacturing and marketing system. Many U.S. forestry consulting firms--and technical personnel from the U.S. forest products industries--specialize in timber inventory, land surveys, and wood utilization. These surveys could be enormously important for successful forest-based industries in developing countries.

Development of Factory Management Skills. Countries that are just now emerging from pitsaw or portable sawmill status are often deficient in the skills required to operate larger manufacturing enterprises. Deficiencies can be in the use of equipment, labor, energy, and raw materials. Lacking, too, can be the ability to make wise decisions in the area of equipment repair vs. replacement. Technical capability in fields such as quality control, yield control, product scheduling, and time and motion analysis could be bolstered through technical assistance provided by U.S. private enterprises.

Marketing. As an industry expands in size and complexity, the marketing of the product may move from custom sawing to shipping. The basis for maintaining market intelligence, the business procedures required in export sales, the use of specifications, grades, and standards in sales documents, quality assurance and

commodity pricing are all technologies that may be lacking in developing countries. U.S. forest-based firms are one vehicle to introduce these missing elements.

Research and Development. In most developing countries, there is a lack of appreciation for the importance of research and development. Some technology can be transferred directly from industrialized countries, but much technology must be adapted to local species and conditions. Developing countries often lack the managerial capacity to organize private or government research and development programs and suffer scarcities of research talent essential to their success.

Many of the most important inputs into the emerging forest industries of developing countries fall in the domains of education and research. Education and research often can be conducted as joint ventures between U.S. industries and U.S. universities. The objective is to combine industrial expertise with teaching competence.

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A PERSPECTIVE FROM A FORESTRY CONSULTANT

Larry Bell and Jerry T. Davis

From the point of view of a private consultant, the following items should be considered in projects involving international private enterprises. For the sake of simplicity, these are presented in outline form.

THE NEW FOCUS OF AID

AID should put organizations, not just individuals, to work gathering the basic information for an analysis of forestry-related business opportunities. The persons involved should have technical backgrounds as well as experience with the language and culture of the target country.

AID should identify prospective projects on the most practical basis possible, both within and outside of the host country government, to meet the precise needs of the economy. A prime objective of the preliminary analysis should be an assessment of the target country's economic health and attitude toward forest resource development.

Analysis teams should be composed of experts from U.S. business and academic sources. Academics can help on methodology and review of existing information, but business representatives are needed onsite to cut through red tape and to approach business interests directly. As a team, the two groups could ensure that the analysis covers social, political, and economic perspectives. Knowledgable representatives from the indigenous business community would add to the effectiveness of the analysis team by expediting information gathering and by providing a training attribute to the program.

AID should assist U.S. companies to follow the necessary procedures to work effectively in the foreign country in such areas as obtaining licenses, adhering to tax laws, etc.

AID should consider activities to evaluate and improve existing enterprises and to determine their training needs.

DIRECTIONS AND ACCOMPLISHMENTS

AID should provide a sustained mechanism for identifying policy constraints and business opportunities--not "here today and gone tomorrow"--and get the host country to support the endeavor with funding, also.

AID should not encourage further subsidization of "studies" made by host country government agencies, but should keep the matter in the hands of private enterprise as much as possible. Financial institutions often have little confidence in evaluations of resource volume and utilization made by the public forestry sector. Even FAO reports are biased by a country's own desire to have a project appear attractive, when it may actually be a poor investment.

In the area of policy reform, the first step should be assessment of government policies for encouraging foreign investment in the country. The second step should be the analysis of policies affecting domestic and foreign trade opportunities for the indigenous business.

Accurate assessment of raw materials is often lacking in investment analyses pertaining to developing countries. According to the Inter-American Development Bank, "There are few well-prepared, bankable forest-based projects in the pipelines of national and international institutions" for lack of technical support in project preparation. AID could provide valuable technical assistance in this area through the use of U.S. consulting firms. This would give these projects greater credibility by providing more reliable, market-oriented information on a country's forest resources.

GUIDELINES FOR SCREENING PROPOSED AID PROJECTS

The country must have some historic precedent for attracting good investments.

The country must demonstrate the maximum degree of receptivity to foreign investment.

The history of U.S. investment in the country should be studied. Analysis of the reasons for success or failure of previous ventures would be one of the most educational exercises of the analysis phase.

The business and technical assistance programs sponsored by other developed countries should be assessed to determine what factors contributed to their success or failure. This will indicate how the United States can make a more effective contribution.

The best groups of small- and medium-size forestry investment opportunities should be evaluated in the context of their impact on larger scale industry, together with their effect on the local and regional economy.

RANKING PROJECTS IN TERMS OF DESIRABILITY

Selected projects should show the best possible economic potential in the first round of considerations. If they do not, they should be dropped in favor of better options. A project should not be selected if its success depends upon substantial policy reform not favored by the existing government.

At the same time, countries and projects should be selected on the basis of potential humanitarian benefits (such as fuel-wood in Somalia) so that the program can show that it has social as well as economic priorities.

Again, the track record for U.S. participation should be studied.

AID ASSISTANCE TO U.S. BUSINESSES

AID can (1) provide information on the best opportunities and the most crucial problem areas that affect investment, (2) identify the businesses in the developing countries that need technical assistance and/or capital in order to develop, and 3) define export or commodity exchange opportunities.

AID ASSISTANCE TO BUSINESSES IN DEVELOPING COUNTRIES

AID can (1) assist firms in developing countries to prepare accurate feasibility studies in terms that potential foreign investors can understand, (2) provide the names of U.S. businesses that have comparable interests and needed technical expertise, (3) provide assistance in finding financial support once technical and capital needs are identified, (4) fund consultants to provide training in resource inventory techniques, cadastral survey methods, and basic management skills, and (5) help identify the elements of foreign exchange that are possible within an international loan in order to stimulate the host government to provide other incentives.

MEANS OF IMPLEMENTATION BY AID

AID should (1) work to coordinate private enterprise investments by both indigenous and foreign businesses, (2) get the analysis phase completed first, using a team of private businessmen from both the United States and the developing country as consultants, and (3) avoid using inexperienced people during the investigative phase.

AID could get appropriate government/private contacts involved by mass correspondence explaining the purpose of the mission and soliciting help. In this manner, the contacts may tend to feed information to the analysts rather than having to be coaxed into participation.

INDIRECT APPROACHES

AID could sponsor an investment opportunity newsletter with a forestry orientation to be published bimonthly or quarterly. It could publish news from selected target countries where there is sufficient diversity of business to warrant sustained analysis. The "International Trade and Marketing Association Access Report" is a sample of this type of publication.

AID could turn to businessmen in the developing countries for more ideas. In fact, such individuals should be invited to planning conferences to provide that perspective.

AID could obtain more ideas by checking on the European Economic Community format for assistance to private enterprise in other countries.

STRETCHING AID DOLLARS

Cost sharing is a good incentive. AID should get U.S. businesses and indigenous businesses to invest jointly in the project. Other partners could include host country governments and international banking concerns. In this way, all partners have a vested economic interest in the success of the project.

AID should work with and through established investigatory channels, for example, the World Bank investment missions. The technical reports from the Inter-American Development Bank workshop on financing for Latin America also offer excellent ideas.

CRITERIA FOR MEASURING SUCCESS

The speed and thoroughness with which the evaluation phase is carried out and

the extent of response and cooperation of the host country's business community are two good indicators of success.

Another measure of success is the reliability of the information gathered in the analysis phase and its effectiveness in attracting capital from public and private financial sources. Confidence in the feasibility of a project, when carried out according to the recommended design, is the best testimony to its effectiveness.

It is not how much money is spent in the AID effort but how efficiently the money is put to use that will determine the success of a venture. As Casey Westell at Tenneco has said, "History has proved that no country can spend its way to prosperity by reckless use of capital, no matter how worthy the national plans or desires may be." Ultimately, the project must stand on its own in order to survive. All planning must be directed toward that end.

INTERNATIONAL TRADE IN FORESTRY PRODUCTS

Harold W. Wisdom

PROJECT POTENTIAL

The Role of Exports in Forestry Development

In his most recent book, P. T. Bauer (1981), an expert on international development, states:

The West can contribute to Third World development best by reducing its barriers against Third World exports. The damaging results of these barriers in restricting markets and external contacts are compounded by frequent and unpredictable increases in their scope and intensity.... The threat of increases in trade barriers when some Third World industries expand their exports inhibits productive investment, exacerbates unemployment and retards the spread of skills.

Exports contribute directly to the profitability of the domestic forest products industry and create employment in export-related activities. Exports will tend to raise the prices of all timber species, raising some previously submarginal species above the threshold necessary to make them profitable to harvest.

Exports also contribute to the profitability of domestic forest products manufacturing by diversifying the demand for forest products. This reduces the impact of fluctuations in domestic demand.

Despite the favorable effects exports can have on the development of the forestry sector of a developing country, it does not follow that the United States Agency for International Development should support host government efforts to stimulate forest products exports by intervening in the marketplace. Rather, the focus should be on the removal of artificial barriers to trade in forest products. With the barriers to trade removed, the marketplace will determine the appropriate kind, direction, and volume of forest products to be exported.

Unfortunately, estimates of the export potential of the forest sectors of developing countries often ignore the influence of world prices on trade. In these analyses, trade is derived as a residual. If domestic production is projected to exceed demand, the country is said to possess export potential; if production is projected at less than demand, the country will import the difference. This, of course, is the familiar gap model.

Estimates of export potential based on the gap model are unlikely to reflect the level of exports that would result from operation of the free market. Such estimates should be viewed with skepticism, and AID should be cautious about supporting export programs based on them. AID may inadvertently promote the misallocation of resources by encouraging the host country to overinvest in export activities.

The gap approach to trade also ignores that a country can be simultaneously an importer and an exporter of wood. Differences in wood grades, product specifications, and location of the forest resource relative to markets can all be reasons for international trade.

Tariff Barriers to Trade in Forest Products

Tariffs have been the traditional means of protecting domestic economic activity. The most common tariff is the import duty, although export duties are common in developing countries. Most tariffs on wood products are ad valorem tariffs.

The United States assesses ad valorem tariffs on the f.o.b. value of the item. In contrast, most European and developing countries assess tariffs on the basis of c.i.f. value. Because of the differences in valuation, the same tariff rate translates into a lower tax in the United States than in Europe. Similarly, changes

in transportation costs will affect the amount of the duty in Europe but not in the United States.

The Effective Rate of Protection

Since World War II, there has been a steady reduction in tariffs applied to forest products in almost all countries. Today, most unprocessed forest products such as logs, pulpwood, and wood chips carry no tariff. Semiprocessed wood carries tariffs in the range of 1 to 6 percent, and most tariffs on final products range between 10 and 15 percent.

Although nominal tariffs on forest products are modest, the escalation of tariffs by degree of processing leads to a difference between the nominal and effective level of protection accorded domestic producers.

Nominal tariffs apply to the total value of the imported product, but they protect only the portion of the total value produced at home. Although consumers react to the change in price attributable to a tariff, the domestic producer of the product reacts to changes in his production costs, and these are affected by the effective rate of protection (Kreinin 1979).

The effective rate of protection reflects more accurately than the nominal rate the level of protection a domestic producer is given compared with foreign producers. The importance of the distinction between nominal and effective rates of protection can be illustrated by a simple example.

Suppose a Caribbean country is interested in developing a wood furniture industry to replace furniture imports. Further, the country hopes eventually to substitute domestic hardwood plywood for imported plywood used in the manufacture of the furniture.

The domestic price of furniture is \$1,000 per suite, of which \$750 is for plywood and \$250 is for value added (capital and labor). The country imposes a 20 percent tariff on furniture imports to protect its fledgling domestic furniture industry. The price of a suite will rise to \$1,200 and, since nothing has happened

to change the \$750 cost of imported plywood, the post-tariff value added increases from \$250 to \$450. Thus, a nominal 20 percent tariff on furniture raises the return to capital and labor by 80 percent above what it would be under free trade. That is, the cost of domestic imports, value added, can increase by 80 percent, and domestic furniture will still be competitive with imported furniture. The effective rate of protection accorded domestic producers of furniture is 80 percent.

Now, suppose the country decides to impose a 30 percent tariff on plywood as a measure to stimulate a domestic plywood industry. The plywood industry would use domestic hardwood timber to produce hardwood plywood for the furniture industry. The tariff on plywood would increase the cost of plywood in furniture manufacture to \$975 ($1.3 \times \750) and reduce the value added to \$225 ($\$1,200 - \975). The effective rate of protection accorded furniture is reduced from 80 percent to a negative 10 percent [$(\$225 - \$250)/\$250$]. Thus, the tariff on plywood increases the cost of furniture production, thereby reducing the protective effect of the furniture tariff. In fact, the 30 percent plywood tariff is so great that the net effect is to impose a tax of 10 percent on the furniture industry. By its actions, the government may render the furniture industry unprofitable.

This example illustrates two points. First, a carelessly designed tariff structure can discourage rather than encourage domestic production; second, a general reduction in tariffs will increase the effective protection accorded domestic manufacture if the percentage reduction in tariffs on intermediate inputs is greater than the reduction of tariffs on the final product.

Nontariff Barriers to Trade in Forest Products

Despite the substantial reductions in nominal tariff rates in recent years, some trade specialists feel that there is a rising tide of protectionism in the world today. Modern protectionism is based upon a complex pattern of nontariff trade barriers, many of which are quite subtle and

difficult to identify, and which provide more effective protection than tariffs.

The United States Tariff Commission identifies six categories of direct non-tariff barriers (USTC 1974): quantitative restrictions and similar specific limitations on trade; nontariff charges on imports; government participation in trade; standards as technical barriers to trade; customs procedures and administrative practices; and discriminatory ocean freight rates.

Complaints received by the USTC (1974) provide a rough indication of the importance of each category.

Quantitative Restrictions and Similar Specific Limitations on Trade. About one-third of total complaints to the USTC are about quantitative restrictions on trade. For the pulp and paper sector, licensing practices are the largest source of complaints, most of which are against developing countries and involve the import of books and paper products. Generally, the objections concern the necessity of obtaining a license, which can be a lengthy and costly process. In the case of solid wood products, about 25 percent of all complaints deal with quantitative constraints, mainly restrictions on the export of unprocessed wood, quotas on plywood, and licensing practices. Two-thirds of the complaints were lodged against the developed countries, principally the United States. In addition, the United States has been accused of forcing voluntary quotas upon foreign suppliers of plywood and lumber.

An example of an import quota is the EEC quota on plywood imports. Imports less than the quota can enter duty free; imports in excess of the quota must pay a duty. Examples of export embargoes are the U.S. ban on softwood log exports from public lands west of the 100th meridian and the ban on logs from Canada, the Philippines, Indonesia, and Thailand, to mention only a few. Voluntary export and import constraints are becoming increasingly important, especially in countries with significant market power, such as the United States. The use of multiple exchange rates has become a popular type of trade barrier, but its importance is difficult to document in the case of forest products trade. Restrictive business

practices by timber cartels and multi-national corporations also affect international trade in forest products.

Nontariff Charges on Imports. Nontariff charges are the variety of charges to which the imported product is subjected in addition to the customs duty. Nontariff charges are perhaps the greatest barrier to trade in agricultural products, but they do not appear to be a major barrier to forest products trade.

Government Participation in Trade. Governments participate directly or indirectly in trade through government monopolies, government procurement, national industries, government subsidy to export trade, and government subsidy to domestic industry. Government represents the single most important impediment to free trade in forest products.

The pulp and paper industry has long been heavily subsidized by governments throughout the world, and some countries in Southeast Asia (e.g., Korea and Taiwan) subsidize domestic plywood producers (Radcliffe 1981). Although it is difficult to document, it is likely that government procurement policies favoring domestic products are a major barrier to trade in forest products.

In most countries, the government either owns or controls a large portion of the forest resources. Government policies regarding the exploitation and export of timber from public land have a greater impact upon trade in forest products than any other single factor. For example, the use of biological criteria to determine the allowable cut of public forests makes the harvests of these forests insensitive to changes in world prices and represents a barrier to trade. Government-owned corporations dominate timber harvesting operations in Indonesia, Thailand, Sri Lanka, and elsewhere. Prohibition of trade in endangered species is another example of trade restriction, as are efforts to reduce the rate of removal of the tropical rain forest.

Government subsidies to private forest landowners influence trade in forest products, sometimes directly, as in the case of Brazil's pulp program; and sometimes

indirectly, as in the case of cost-sharing programs in the United States. Government regulation, such as environmental control, acts as a barrier to trade by raising the domestic cost of manufacture above that of competing countries. I could go on, but the pattern is clear. Government intervention into the forestry sector is pervasive and substantial.

When subsidized exports from one country threaten the domestic industry of the importing country, the General Agreement on Tariff and Trade permits the importing country to impose a countervailing duty on the offending import. A difficulty with this kind of remedy is that it can be a case of "man shoots self in foot." The action may simply encourage the exporting country to retaliate by imposing duties of its own on the import of goods from the country imposing the countervailing duty.

A relatively new form of protectionism gaining rapidly in popularity among the developing countries is the use of reciprocal trade agreements. In their simplest form, reciprocal trade agreements work in the following way: company X is granted a permit to build a pulpmill in country A. However, as a condition for obtaining the permit, company X must agree to market a stated amount of country A's products in X's home country.

Reciprocal trade agreements represent a gross distortion of trade flows. They represent an extreme form of government intervention to bypass the price system of both trading countries. Ironically, it is likely that consumers in the developing country are most adversely affected by the agreement, since domestic production is shifted to the production of export goods whose value both at home and abroad may be less than the cost of production.

Standards as Technical Barriers to Trade. Differences in standards among nations often present a major barrier to trade in forest products. The lack of international standards for grading lumber and plywood is a frequent complaint made by exporters of these products. The failure of the United States to adopt the metric system both limits foreign solid wood imports into the United States and U.S. exports to other countries. Japan's

rigid technical specifications limit imports into that country.

The barrier presented by grading standards becomes even more restrictive in the case of relatively unknown tropical hardwoods attempting to enter the markets of developed countries. Compared with the temperate forests, tropical forests consist of a large number of species, often numbering into the hundreds per acre. In addition, the physical characteristics of the trees are extremely variable from species to species. This diversity creates severe marketing problems for all but three or four specialty woods.

Customs Procedures and Administrative Practices. The most frequent complaint in this category concerns customs valuation procedures. For example, U.S. exporters complain that they have a disadvantage in world trade because the United States uses f.o.b. values for assessing duties, while most countries use c.i.f. values.

At the same time, other countries criticize the United States for the complexity of our valuation system, which uses nine different standards for import valuation. Most countries have adopted the Brussels Valuation System, which is based on the "normal price" of a commodity, defined as the price for which the good would sell at the time the duty is assessed. The United States has adopted a concept of value based upon the price at which the commodity is actually sold. A frequent complaint against developing countries is their use of "official values" set by the government, rather than some form of market value.

Discriminatory Ocean Freight Rates. Transportation costs can affect trade in forest products in much the same way as tariffs. In fact, transportation cost is sometimes referred to as a "natural tariff."

A study of Indonesian exports to the United States estimates ocean transport and tariff costs for selected products (Yeats 1976). Transportation for forest products was about double the average for all products and was substantially greater than the tariff burden on forest products. Furthermore, the transportation cost from

Indonesia was substantially higher than the average for U.S. imports of similar products from other countries. The rate may be higher because of Indonesia's remote location from the U.S. market, but it may also be due to inefficiencies or other factors. A study of ocean rate policy found that large transport cost differentials for exports from developing countries to Europe are largely accounted for by such factors as loading costs, efficiency of port operations, utilization of shipping capacity, composition of cargo, and competition among carriers. All of these factors are subject to policy control (Fastbender and Wagner 1973).

In a recent study of ocean transport costs for forest products, Wisdom (1983) found that the main factors influencing freight rate are distance, the unit value of the product, and the volume of trade on the route. Cargo with a high unit value tends to have higher freight rates. Freight rates for forest products are sensitive to distance but not as sensitive as one might think.

CONCLUSIONS

The overall impact of barriers to trade in forest products is difficult to judge because of the wide variety of measures adopted and the absence of a quantitative measure of their impact upon trade. Consequently, assessment of their significance must be largely subjective. Assessment is complicated by the fact that frequently more than one barrier may be acting upon the same product and in more than one country (USTC 1974). The most important barriers to the export of forest products from developing countries, roughly in order of their importance, are as follows:

1. Government restrictions on exports of unprocessed wood products.
2. Absence of consistent standards for grading lumber and plywood exported from developing countries.
3. Inadequate port facilities for handling forest products.
4. Poor packaging of forest products for international shipping.

5. Inadequate market information on tropical woods in the developed countries.
6. Discriminatory ocean transport costs against forest products.
7. Inadequate long-term credit for financing forest products exports.
8. An escalating tariff structure.
9. Delays in granting import licenses for forest products.

Not all of these barriers are equally important to all countries. A country-by-country survey would be needed to measure the relative importance of each barrier in each country.

Program Implementation

The central thrust of AID policy is to improve the functioning of the free enterprise system and to encourage free trade among the democratic developing countries. I interpret this to mean that we should focus our efforts on projects that would remove barriers to the efficient operation of the market system. These barriers might consist of government imposed constraints to trade, imperfect capital markets, imperfect market information, and, perhaps, economies of scale.

Another important consideration is the limited resources of the developing country, in particular, the ability to support the recurrent costs of AID projects. Increasing numbers of developing countries have severe cash flow problems. At a time when the richest nations of the world are finding it necessary to cut back on government programs, it seems only sensible to recognize that the situation is more severe in the developing countries. It is not a question of needs but of ability to pay. With these constraints in mind, the following tentative list of projects is suggested for AID's consideration:

Improve Port Facilities for Handling Forest Products in Developing Countries.
Port charges commonly make up from 30 to 60 percent of the total cost of ocean shipping (Bennathan and Walters 1979). Much of the port cost is attributable to

cargo handling and time spent in port. Programs designed to improve the handling of forest products can reduce ocean shipping costs significantly for bulky forest products such as lumber and plywood. Without a developed port facility, other forms of rationalization are a waste (Evensen 1975).

Improve the Packaging of Solid Wood Products for Ocean Shipping. A demonstration project in a developing country is suggested, since much of what is learned about the packaging of tropical forest products can be transferred to other tropical countries.

Analyze Long-Term Demand for Forest Products from the Developing Countries. This study would consist of an in-depth analysis of the major potential export markets for tropical hardwoods. The study would include the analysis of trends in wood use, wood use per unit of final product, substitute materials and projections. The absence of basic references and statistical sources makes it difficult to conduct studies of foreign economies from within developing countries. The researcher frequently is hard-pressed to find basic information on the host country, much less information on prices and wood use trends in the developed countries.

Prepare Profiles of the Major World Markets for Tropical Woods. This project, related to the previous one, would focus upon the preparation of profiles of the individual wood markets. The objective would be to prepare a series of documents in which key statistical and marketing information is presented in one place. The profiles would be made available to government and industrial planners and marketing departments of forest products companies to help them prepare their own sector plans and market studies.

Provide Long-Term Credit for Exporting Forest Products from Developing Countries. Exporting wood products may involve the lapse of more than a year between the time the tree is cut to the time the product reaches the consumer in the export market. At the different stages from the forest to the consumer, there are needs for credit as sellers wait for payment from buyers. Capital markets are notably imperfect in

developing countries and especially so in the case of wood exports because of the susceptibility of the product to damage, theft and loss. The approach should be to encourage existing financial institutions to adopt the desired credit program. This might require a system of credit guarantees or the provision of low-cost capital through the appropriate government agency. The specific financial mechanism would depend upon the country.

Develop a Series of Extensionlike Publications on Tropical Woods. The properties and availability of the nonspecialty woods in the tropical forests could be made known through a series of publications describing the technical properties of the woods, their occurrence, reliability of supply, and so on.

Evaluate the Effective Level of Protection Provided by Tariff and Nontariff Barriers to Trade on Forest Products. Although the nominal tariff rates applied to most forest products appear to be modest, it is necessary to know the effective rate of protection before one can draw conclusions about the level of protection provided by the tariff schedules of the developed countries. A similar analysis needs to be made of the tariff schedule of the developing countries to determine whether the tariff structure favors or works against the development of domestic wood manufacturing.

A Tropical Hardwoods Marketing Center?

Should AID assist exporters to fund a "tropical hardwoods marketing center" in the United States? The establishment of marketing units in foreign countries is a conventional international marketing strategy. The U.S. forest products industry, for example, has an active overseas promotion program with offices in foreign countries. This program is in part subsidized by the Foreign Agricultural Service of the United States Department of Agriculture.

In the conventional export program financed by the exporting country, those who gain are the manufacturers of the exported products and foreign consumers. Those who lose are the consumers in the exporting country and producers of similar products in the importing country. Thus,

some opposition by U.S. hardwood producers to a tropical hardwoods center is to be expected.

I do not believe that it would be advisable for AID to become directly involved in the establishment of a marketing center. AID's involvement should be limited to providing funds for organization and start-up costs. The initiative and follow-through for the establishment of a hardwood marketing center should come from the developing countries, which should provide a substantial portion of the investment costs and all of the operating costs. If producers in the developing countries are unwilling to provide substantial support for the center, this would seem to provide prima facie evidence that the center is not viable.

Personally, I prefer the concept of a tropical hardwoods marketing research center, designed to produce general market information for all interested countries and firms. The research center would coordinate the preparation of the market analyses and profile studies previously discussed above and disseminate technical information about the tropical woods. The direct marketing activities are better left to the countries and firms themselves.

A Marketing Information Clearing House?

Is a marketing information clearing house desirable? The answer in this case is straightforward. Private enterprise already produces marketing reports for tropical woods, such as the "Export/Import Wood Purchasing News." This publication includes periodic reports on all major tropical hardwood producing regions, and it carries market announcements. AID should do nothing to threaten the survival of private initiatives. If private market reports are incomplete, AID might consider aiding these businesses to expand their coverage. However, this assistance should not lead to a permanent subsidy.

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This paper focuses on certain aspects of management training in the specific context of the private forestry enterprises in developing countries. Additionally, this report proposes some solutions to the forest industries management training problem in which AID's private enterprise development programs could make significant contributions.

PROBLEM DEFINITION AND PROJECT POTENTIAL

As Laarman and Dutrow indicated in their introductory remarks, most developing countries suffer a shortage of persons with technical and managerial skills. The U.S. Agency for International Development (1982d) states: "Simple business skills are often in short supply... . In even shorter supply are management skills--and these are the harder of the two types of basic private sector skills to teach." This shortage of managerial skills is characterized as one of the "constraints to enhancing the role of private enterprise in development" (U.S. AID 1982c).

As the development of a country or society is a matter of degree, so is the shortage of managerial skills; the acuteness of such shortage will vary from country to country. Also, depending on the structure of a given national economy, the scarcity of technical and managerial skills may well vary from one sector to another.

In the particular case of forest-based industries, it is virtually impossible to propose a general solution to the scarcity of managerial skills as an obstacle to private enterprise development. Among the countries considered as "less developed" or "developing," the forestry sector presents striking contrasts. One extreme would be the case of Chile with its highly integrated private forest industry and its sophisticated managers and professionals. At the other end of the spectrum would be a country like Nepal, which, although endowed with abundant forest resources, is

merely a beginner in the forest industries field. In most developing countries where forest industries can contribute to economic development, the status of management skills probably lies between these two extremes. Moreover, each particular country will probably have its own peculiarities. As a result, the solution to the problem of management training for private forestry in developing countries must be approached on a country-by-country basis.

In the majority of cases, forest related economic activities will involve forest management, harvesting and wood supply, and wood processing. Carrying out these activities requires technical skills, many of which are formally taught in professional and technical forestry schools in most developed and developing countries endowed with a significant forest resource base. While forestry curricula place a heavier emphasis on forest management, graduate foresters usually have at least a minimum of exposure to wood utilization. In addition to these technical skills, a successful contribution of private forest industries to economic development requires a solid grounding in economics and managerial disciplines such as accounting, finance, marketing, and international trade. An understanding of the institutional framework in which both private enterprise and the forestry sector operate is also needed.

Thus, the ideal "forest industries manager" would be an individual whose complex of knowledge includes forest management, wood utilization, economics, managerial skills and knowledge of the institutional framework. While the training of such a professional may appear to be an insurmountable task from an academic standpoint, it is true that most successful managers, in any industry, master a combination of technical, economic, and managerial disciplines.

The country-by-country analysis previously mentioned will need to identify the skills that are available. In this context, and from the standpoint of forest industries, developing countries can be classified in three major groups: those in which technical and/or managerial skills are in short supply, those in which both technical and managerial skills are present but somehow do not get combined to form effective managers for private forestry, and those with a well-developed private forest industry usually run by well-rounded managers.

The countries in the first group are, in general, among the poorest, and the training of managers has to be viewed in the broader context of general economic development. Usually, the economies in these countries are largely based on subsistence agriculture, and their industrial potential is just being discovered. Countries in this group that welcome private enterprise and are endowed with forest resources should, perhaps as a first priority, identify the place of private forest industry as an eventual development lever. This identification would require, among other things, an understanding of the resource; an assessment of future markets, both domestic and foreign; a tentative definition of products to be made; and an estimate of cost advantages with respect to import substitution and export potential. In a country where economic development is only beginning, skills and capital will have to be supplied from outside sources until the country's economy--and the forestry sector within it--reaches a stage of development that warrants and permits the training of professionals.

Most developing countries with significant forest resources, however, are not in this first category, with the possible exception of countries in tropical Africa. Most forested countries in Latin America and Southeast Asia have professional forestry schools and university programs which offer training in the disciplines of economics, accounting, and marketing. It seems, therefore, that most developing countries with private forest industry potential are in the second group, i.e., those in which managerial skills exist, but there is a lack of managers possessing the right combination of skills.

Since the technical skills imparted in forestry schools are a necessary condition for forest industries development, most of these countries, with their professional forestry programs, have a fairly solid base from which to prepare managers for private forest industries. In many of these countries, however, one often hears complaints that the forestry graduates are not industry-oriented, are not interested in business management, have no business sense, and place too much emphasis on conservation rather than production. These concerns have been echoed in the literature on forestry education. Wyatt-Smith (1970) argues: "Very few professional foresters have found themselves in forest industries for several reasons.... The emphasis given during training does not readily equip them for posts in industry, even on the logging side. Industries are more interested in personnel with an engineering, economic, management, or commercial-type background or inclination, whether they have a professional qualification or not."

Another argument is that forestry training may be adequate for civil service but not for forest industries. For example, Richardson (1969) states: "It is perhaps also necessary to emphasize the desirability of separating industrial manpower requirements from those of production forest management. The kind of training required for the forest industries is basically different from that needed in forestry and, in the view of this writer, it cannot be provided by foresters."

This view appears extreme. Forest industries, at least in North America, abound with professionals with forestry training who have turned out to be successful managers in private enterprise. Additionally, wood technology education, in most cases, appears to have been created by foresters. As Preston (1970) states: "Using the United States as an example, wood technology was essentially unheard of until shortly before the second world war.... Forestry programs, although land management based, contained a substantial component of utilization, and many people with forestry education developed interest in professional orientation toward wood and its conversion. Thus, the industry naturally looked to forestry schools for knowledge of the material and for manpower."

As in the case of the United States, most countries with professional forestry programs can train forest industry managers by using the forester as a starting point, rather than by creating a completely new type of professional. At this point, one may ask: What needs to be done to turn a forester into a forest industry manager? Although the answer will depend on specific situations, it can be approached on the basis of a few general considerations such as:

1. What skills does a manager need to have in order to be successful in forest industries?
2. Which of these skills are obtainable through existing forestry programs?
3. Can existing forestry programs be changed in order to include the necessary skills which they currently do not?
4. If forestry programs are difficult to change, what other possibilities are there for industry-oriented foresters or forestry students to gain exposure to managerial skills?

Although some forestry programs have evolved to include courses in economics and management, this has not been a traditional characteristic. Formal professional forestry education began during the first half of the 19th century in European schools which were created to educate civil servants, not industrial managers. Toward the turn of the century, forestry schools began to develop in North America with a similar orientation. Whereas in both Europe and North America some forestry graduates have developed careers in industry, most of them have spent their professional years in the public sector. Most schools, to this day, continue to have a civil service orientation. Most professional forestry programs in developing countries began to appear after World War II and were highly influenced by North American and European foresters. Therefore, the civil service orientation of forestry curricula in most developing countries should not surprise anybody.

In the most extreme cases, this orientation totally precludes the exposure of the forestry students to wood processing, eco-

nomics, accounting, marketing, and other business principles. In other cases, some of these subjects are dealt with so superficially that little is retained. Only in a few programs do forestry students get taught a solid amount of economic and managerial disciplines that will enable them to learn business management in their professional life.

The introduction of managerial skills into forestry curricula depends to a large extent on the ability of private enterprise to communicate with and influence the faculties of forestry schools. The school of forestry at the University of Chile presents an interesting example. Since its creation in 1955, this school has traditionally had several industry managers as part-time instructors. As a result, courses in wood technology, paper-making, accounting, business management, economic theory, forest economics, and forest products marketing have been part of the curriculum for several years. This is in addition to the basic sciences, engineering, and forest management.

While it would be nearly impossible to cover all of this material in a 4-year program, experience indicates that it can be well covered in 5 years. Needless to say, the graduate of this program will not automatically become a manager. However, he will have had enough exposure to the subjects to decide whether or not he is interested in an industrial career, and to learn business management if he chooses to go that route.

Most countries, however, do not seem to be as fortunate as Chile. In many cases, either the industry is not established well enough to influence the schools, or the faculties are simply not industry-oriented enough to assimilate inputs from the business community. In such cases, the forest-based industries must find other means of educating future managers.

In several developing countries, foresters can find jobs in industry despite their lack of managerial training. Employment opportunities normally occur in forest-based companies with manpower needs in wood procurement, timber inventory, logging, reforestation, and other aspects of land management. However, experience

shows that, due to the lack of managerial skills, these individuals cannot progress in their careers beyond the level of middle management.

In finding avenues to supplement forestry training with managerial skills, private forest industry must focus on the availability of skills within the country before considering overseas alternatives. Overseas training is usually expensive and is not always justified, especially if managerial training is potentially available at home. In addition, private companies must assess the need for training at different levels within their organizations. Requirements for a recent graduate will be different from those for a land manager with 10 years of experience, even though both will need to develop and improve their managerial skills.

The following section identifies management training programs that start with professional foresters as the basic raw material.

STRATEGIES FOR IMPLEMENTATION

Among the possible management training programs in which AID could help private forest industries in developing countries, the following five appear to have the highest potential.

Graduate Course in Forest Industries Management

This program should be offered to recent graduates working for private firms but could also be open to civil service foresters, forestry instructors, and qualified undergraduate students. The program could be conceived as a three- to four-semester evening course leading to a master's degree in forest industries management. Among the subjects covered would be economic theory, forest economics, principles of accounting, managerial finance, raw materials management, lumber and panel manufacturing, introduction to papermaking, and forest products marketing. Students would also have the option of taking certain courses without having to complete the whole program. Initially, such a program could be a cooperative effort of AID, a university, and the forest industry. Some of the faculty could be forest industry managers working on a

part-time basis. A program of this kind could pay high dividends. Not only would it increase the managerial abilities of forest industry professionals, but it also would introduce forestry teachers and civil servants to managerial disciplines. This should help cultivate a better understanding of forest industry in the civil service and the academic community.

Specialized Summer Courses

These should be offered to professionals with several years of experience. The courses would involve a combination of technical and managerial disciplines specifically tailored to each individual. Depending on the country, some of these courses will have to be given abroad. These programs could be developed as an effort combining a local forest industry association, AID, a local university, one or more foreign universities, and perhaps one or more foreign forest products companies. These courses would be geared toward increasing the effectiveness of forest industry managers in their area of specialization. It is important that these courses be given on a full-time basis and over a brief period of time in order to minimize the manager's absence from his job.

Overseas Graduate Courses in Forest Industries Management or Related Disciplines

These courses should be especially designed to prepare instructors for the graduate course in forest industries management, although they could also be offered to high-potential industry individuals in special cases. The programs would be offered at the master's or Ph.D. level, depending on each particular case. This type of training would also require the participation of industry, the local university where the graduate course in forest industries management will be taught, and one or more foreign universities. Perhaps, initially, AID can coordinate these efforts.

Management Seminars

These can be domestically organized, perhaps as a joint effort between the local society of foresters and industry, with initial AID financial participation.

They would entail presentations by industry professionals on specific managerial subjects to young practicing foresters and to advanced undergraduate students. While these seminars would not necessarily qualify as formal training, they would give young foresters exposure to managerial problems and generally would facilitate communications between industry managers and young professionals.

Introduction of Managerial Subjects in Undergraduate Forestry Curricula

The development of this type of program will depend on the receptivity of forestry faculties to management disciplines, the nature and degree of contact between forestry faculties and forest industries, and the availability of instructors qualified in both forestry and management. In any event, this program should become a goal to be attained as the programs described above begin to bear fruit. The result will be that forestry graduates will have been introduced to managerial disciplines by the time they graduate. This will make the young professionals in industry more effective in their work. Additionally, civil service foresters will at least know the language of management. This, in turn, will lead to better government understanding of industry problems and to more cooperation between the private and public sectors.

The programs suggested above appear to be consistent with AID's plans (U.S. AID 1982a,b,c; McPherson 1982). If properly implemented, they have the potential for being self-sustaining with initial, but temporary, participation on the part of AID.

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SUCCEEDING IN FOREIGN JOINT VENTURES

Norman E. Johnson

INTRODUCTION

If one reads the international news page of "Pulp and Paper," he will see a variety of activities in the joint-venture business. Weyerhaeuser Company sold its interest in International Timber Corporation of Indonesia to its Indonesian partners. Kimberly Clark, while starting a new joint venture in Australia, has purchased 100 percent ownership in the Suzano-Kimberly mill near São Paulo in southern Brazil. Scott Paper is building a joint-venture mill in Malaysia. At the same time, some large forest industry projects are going on without benefit of U.S. or European partners, including projects in Africa, India, Cuba, Argentina, and Brazil.

A joint venture is a form of partnership. Partnerships in one's own country composed of partners of the same ethnic and cultural backgrounds and speaking the same language can have serious problems. Joint ventures between U.S. companies and partners of developing countries can have even greater problems. However, the opportunities far exceed the problems for those companies who develop successful joint ventures.

SOME SUGGESTIONS FOR SUCCESS

Partners

Perhaps the most important step in starting a successful joint venture is the selection of a local partner. In Indonesia, for example, more than 700 forest concessions have been granted. Concessions were allotted to governments, war heroes, businessmen, politicians, and wives of politicians.

The most successful joint ventures I have been acquainted with are those in which the local partner is a successful businessman in his own right. Weyerhaeuser's partners in Indonesia were a group of army officers who had been given a large timber concession to raise funds for re-tired military personnel. Georgia-Pacific's partner, on the other hand, is a

highly successful local businessman with connections to the top of the government. Weyerhaeuser's partner in Malaysia is a philanthropic branch of the government.

Some local partners take a "back seat" role in the joint venture. This is usually accomplished by paying the local partner enough so that he or she does not care to get involved. Some of these joint ventures have survived for a number of years, but usually this kind of arrangement leads to trouble within a short time as mistrust develops.

Building Trust

Coincident with selecting a partner is developing trust between the partners and with the government. Usually, at first, the local partner and government will be skeptical of large companies from developed nations. They have seen companies with good reputations at home behave differently away from home. On the other hand, most U.S. businessmen are suspicious of foreign partners and governments, thinking that they are out to "fill their pockets."

Local governments are making it more difficult all the time for foreign firms to form joint ventures as they demand a bigger share, limit the profit that can be taken out, insist on more forward integration of products, and insist on majority ownership and control. Fees traditionally charged by the parent company for management, sales, and technology are often a source of contention and distrust.

How is trust developed? The process is the same as that for developing trust between husband and wife, parents and children, management and labor, or businesses and government in this country. Some of the rules follow.

1. Jointly work out goals, objectives philosophies, and respective responsibilities.

2. Involve the local partners as much as possible.
3. Reduce the "We-They" to a minimum.
4. Treat them as you would like to be treated.
5. Discuss problems openly and honestly.
6. Don't try to hide anything from the local partner.
7. Try to meet the needs of the local government and follow as closely as possible its rules and regulations.

Relative to point 7, Schenck (1979) said of successful joint ventures in Indonesia, "They plowed their timber profits back into the business. This is the key to success." Local partners and governments are quick to sense when the foreign partner is looking for immediate profits at the expense of growth.

Negotiating with Governments

In many joint ventures, the partners will be the government itself. In any event, the government will be heavily involved. Wells (1977) gives some good advice for negotiating with governments of developing nations. He points out that with emerging nationalism, negotiations with governments in Asia, Africa, and Latin America have become increasingly frustrating. He says that sometimes misunderstandings have been so great that they have led to a breakdown in discussions that each party would have liked to bring to a successful conclusion. To increase the chances of successful negotiations, Wells' first rule is to understand local economic and political problems. This sounds easy, but it may not be. The government representative may be interested in more than cash flow. Wells says that the representative often has to show his people that he is getting something for them that is at least as good as neighboring governments have gotten for their people. At the same time the representative is trying to get a good deal for his country, he may well be trying to get a better deal for himself.

Wells' second suggestion is not to expect that terms will remain unchanged.

A Malaysian Chinese told me once that whereas Westerners look at a contract or agreement as something final, the Oriental often looks at a contract as a beginning point for more bargaining. Also, it is characteristic of people in some countries to say "yes" to be polite when they really mean "no." A third suggestion by Wells is to watch the tone of the agreement. One must avoid self-praise. Few persons in developing countries like to have the accomplishments of Americans called to their attention. In fact, I doubt that they like being referred to as "developing or Third World nations."

I have mentioned earlier the need for patience in negotiating with governments. One must be prepared to wait hours for appointments. One should also be prepared for cancellations and substitutes. Once you get an audience, it may take a long time to get down to business. Having someone with you who is familiar with the local government officials is very helpful.

Now a couple of comments relative to communications: I cannot over-emphasize the importance of using simple words and repetition. Frequently, I have seen people in developing countries who spoke what appeared to be perfect English fail to get the meaning of a message because the U.S. visitors used language filled with idioms, colloquialisms, and jargon. Misunderstandings are more often the rule than the exception when persons from different cultures are trying to communicate.

It is important to learn the local language for routine communication, and to show an interest in the people and culture. However, unless one becomes exceptionally proficient in that language, he should always work through a qualified interpreter. One or two mistakes in communication can cause irreparable damage to negotiations.

Our nonverbal communications can be as important as our verbal ones. These include the way we dress, the way we position our bodies, our gestures and facial expressions. In some cultures, crossing one's legs is impolite. In others, offering something with the left hand is an offense. Get some knowledgeable counsel

on this before going to meetings. You will also need advice on gift giving, both from a local customs point of view and from a U.S. legal point of view.

More important than any of the above suggestions, however, is to be sincere and honest in what you say. Even though local customs may allow local officials to conceal their feelings, they expect the U.S. businessman to be open, sincere, and honest.

Selection of Managers

In analyzing Weyerhaeuser's successes and failures in its Far East ventures, Dr. Fred Fosmire, senior vice-president for human resources, gave this description of the manager who will be successful in Malaysia:

1. The effective manager in Malaysia must develop a deference to and a respect for the sensitivities of a multiethnic work force.
2. He recognizes harmony as an important business orientation. Relationships are more personalized, with an unwritten code that relates more to unspoken tolerance and understanding than to legalistic agreement.
3. The highest priority (among the Malays) goes to getting along with others. Much social behavior is concerned with showing mutual respect.
4. The ideal manager is one who is always calm, courteous, and pleasant.
5. The ideal manager understands social and political forces in the country. He understands that government impact on the policy, performance and behavior of business has never been stronger in Asian countries than it is today.

I have been associated with perhaps a hundred expatriates in Far East joint ventures. The quality and qualifications of these people have ranged from exceptionally good to exceptionally bad. Character-

istics of the better qualified expatriates follow:

1. The expatriate must have real knowledge, something to offer. No matter what his social qualities are, if he doesn't know his job, the local is quick to sense it and will likely reject him.
2. The expatriate should want to train as well as operate. How he does this is not as important as that he does it. Some of the most successful trainers I have seen are hard-nosed, hard-talking operators with something important to teach and who are willing to do so. Another way to put it is that a phoney is quickly detected no matter how aware he is of local culture. The local wants to learn, and he wants to be taught by someone who knows his trade. The expatriate manager must be willing to teach by doing rather than in the classroom. He must go into the woods, the sawmill, or maintenance shop and work side by side with locals in order to achieve best results.
3. It is helpful if the expatriate and his/her spouse have a genuine interest in learning new cultures and new languages. A knowledge of the language, however rudimentary, will improve relationships and make the stay more enjoyable. It is equally as important for the spouse to be adaptable and happy as it is for the employee.
4. To be most successful, the expatriate should be willing to stay more than the 1 or 2 years that most of them do. I would like to see commitments of 3 to 5 years.
5. Both husband and wife should demonstrate patience and understanding and not say "In America, we...."

There is no sure method of selecting candidates who will succeed in overseas assignments. A start, however, is to have both husband and wife interviewed by several persons who have been overseas. By doing this, I believe that we can be "right" about 80 percent of the time.

Training

I can't overemphasize the need for training. It must start as soon as possible and be carried out for the life of the joint venture. I have discussed the kind of trainers that are desirable, but I would like to make these additional points:

1. Don't overstaff with expatriates. Select a few good ones and let them get locals ready for key jobs. In other words, create a real need for training. For example, one expatriate and 400 Indonesians ran a successful, medium-size logging company in Kalimantan (Schenck 1979).
2. Be willing to take some risks by putting locals in jobs that really challenge them against a set of agreed-up standards. Where possible, get locals involved in the evaluation of performance. (This is not always easy to accomplish where the culture stresses harmony.)
3. Make sure that all expatriates are trainers and not just human-resource types. Training should be a key component in each expatriate's standards of performance. A sizeable part of his compensation should be based on how well he does his training job.

Training cannot be stressed too much. However, I am of the opinion that the rising tide of nationalism in many countries stands in the way of optimum staffing. Certain technologies take longer to transfer than others. At some stage of nationalization, a government should allow companies to select specialists from the nationality that can do the job. I have seen wholly owned companies in developing countries with European or U.S. production managers. This is perhaps another way of saying that some technologies take longer to transfer than others.

OPPORTUNITIES FOR JOINT VENTURES

Most countries are closing the doors to ventures in which the foreign company has full control. There are fewer opportunities to just harvest and export logs. In some countries, even sawmilling is closed to foreign ownership. Most countries want more advanced technology such as plywood

or pulp and paper. Pulp and paper facilities are very expensive, and many U.S. companies are not willing to take the risk. Some are, however. There are also opportunities for secondary manufacturing such as furniture, shipping containers, and other paper products.

For certain, many U.S. forest products companies are going to have to become more international in their perspective if they are going to grow. We may find that we can add value to our raw material exports--such as market pulp or liner--by setting up joint-venture secondary manufacturing plants in developing countries.

The opportunities for joint ventures exist, if U.S. businessmen are willing to change their traditional attitudes. In particular, the U.S. businessman will have to think more about ventures where he is not in full control. He will have to be willing to leave more of his profits in-country. He must think in terms of more permanence than he has in the past. Profits will be less and returns on investment lower. But, as I mentioned earlier, survival of many U.S. companies will depend on expanding their international investments.

A new kind of joint venture is developing in which U.S. companies provide the technology and the management, and other countries provide the money. Billions of dollars generated by oil and successful industry in other countries are available for joint ventures, both abroad and in the United States. In fact, over the next decade, this may well be the rule rather than the exception. Georgia-Pacific Corporation, for example, will be a 25 percent owner and the manager of a pulp mill in Sumatra without the infusion of a great deal of capital.

Another opportunity for U.S. forestry expertise may be in working with countries that are establishing large-scale hydroelectric, estate crop, or transmigration projects.

HOW AID CAN ASSIST IN JOINT VENTURE ESTABLISHMENT

AID is in a position to help bring joint-venture partners together. AID should be able to assess the available

resources and the local needs for developing these resources. This information could then be made available to interested U.S. companies. However, to get good information, it will be essential to have more people in AID who have the background and experience to assess industrial opportunities.

Also useful would be the analysis of successful and not-so-successful joint ventures. These would prevent new ventures from repeating mistakes.

AID can also be helpful in making joint-venture partners aware of local customs and cultures and in facilitating meetings of proposed U.S. partners with key government people.

AID can help governments understand the role that private industry can play in the full development of the host country's resources. Because of some excesses of private enterprises in some foreign investments, some governments have become suspicious of the role of private enterprise. In Honduras, for example, the government has taken over the marketing of all lumber exports. This has been a real disincentive to private sawmills. The government has also tried its hand in running sawmills, without much success, and it is my opinion that industry could help Honduras out of a severe economic problem.

THEORETICAL AID PROJECT

Let us continue with the Honduras situation and propose a way that AID and industry could help improve the forest products earnings of that country.

First, the situation: In the mid-1970s, the government of Honduras took over ownership of all the trees in the country. The government dictates which trees are cut and when. The government is supposed to pay stumpage to the landowner. However, it quite often does not, using as an excuse confusion in landownership. When it does, the stumpage paid is a fraction of what the timber is worth. As a result, there is little or no incentive for a landowner to grow trees on his land. In fact, most want to get rid of the trees in order to rid themselves of government influence.

The government also took over control of the marketing of all lumber produced in the country. Honduran industry feels, and rightly so, that the government does not know how to get the most from the marketplace. Second, it is well known that the government pays the owner only 50 to 70 percent of market price. This is done in lieu of imposing an export tax, but it puts industry at the government's mercy. It also reduces the incentive to produce a quality product, since the identity of the producer is lost in the morass.

The government now runs two modern sawmills, has an ultramodern one about ready to start up, and has another on the drawing boards. The latter two are part of a system to supply chips to a proposed 125,000-ton-per-year pulp mill.

Now, here are the problems. The two mills are broke. Maintenance is lacking, and the equipment is in tough shape. There are no managers who have run successful production facilities. The government sawmills have no responsibility for marketing their product, and they are as critical of the government marketing program as are the private sawmills.

The newest mill is designed to cut 96 million board feet a year. It is highly automated but situated in an area where most of the people live in thatched huts. The nearest timber supply is 90 kilometers away. The state of the world economy forces another look at the economics of the pulp project. The sawmill will be ready to produce chips, but with no market for them.

In my opinion, only more private enterprise will help the situation. How can AID help?

First, AID can help change Honduran law so that there is a better incentive for private industry to get involved. Second, AID can attempt to find a joint-venture partner for the sawmills. Failing this, efforts should be directed to arranging at least a management contract with a company that has a good record in sawmilling. The solution is never as obvious as the problem, however. It will take the U.S. government, the Honduran government, and business interests in the private sectors

of both countries to harmonize their forest products industry.

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TECHNOLOGY TRANSFER IN THE FOREST INDUSTRIES

Harvey W. Wallender III

Acquisition and exploitation of effective technologies is a critical process for the development of forest products industries in developing countries. At present, there are multiple channels through which technology can be provided. Unfortunately, the technology transfer process has been inhibited by a number of factors. The inability of the user enterprises to identify needs and links to appropriate suppliers has proved to be the most critical factor that has slowed technology exchange. Understanding the characteristics of users and suppliers points out how technical assistance programs might be designed to stimulate more effective collaboration. Additionally, a clear understanding of user and supplier behavior gives insight into the role of supporting institutions within and outside of the developing world. The following material will strive to: (1) define the overall technology (knowledge) flows into a developing country, (2) describe the major factors inhibiting developing country enterprises, (3) identify the characteristics of the U.S. supplier, and (4) suggest strategies for new assistance programs that can improve the technology transfer process to the forest products sector of developing countries.

THE FLOW OF TECHNOLOGIES TO DEVELOPING COUNTRIES

Technology is often discussed in relationship to the control and dissemination of knowledge. Basically, two forms of knowledge transfer are involved in the productive process: "hardware" and "software." However, a commonly held view of technology is that it is simply hardware, embodied in the infrastructure of factories, machines, and products. But of equal importance is software, or the non-material components of the productive process which might best be categorized under expertise.

One appropriate definition of technology, which encompasses both hardware and

software, is that in which technology is defined as "...any tool or technique, product or process, physical equipment or method of doing or making, by which human capability is extended."

Technology, in forms of the overall national need, will be defined as a combination of pure technical knowledge and expertise. Such technology may be subdivided into five categories:

1. General knowledge: that which is publicly available within the society, e.g., through books or universities. This is the "common fund" of knowledge.
2. Industry-specific knowledge: technical knowledge that is common to an industry and possessed by all firms within it. It involves the knowledge of how to produce a product or manage a general industry process.
3. System-specific knowledge: that knowledge and know-how necessary for the production of a specific product which is acquired through engaging in certain tasks or projects linked to the production of a specific item. Other firms producing a similar good would, in the course of actual operation, probably obtain a similar type of knowledge.
4. Firm-specific knowledge: production or process knowledge or know-how unique to a specific firm. This technical knowledge would go beyond what a competing firm might acquire if producing similar products, e.g., the Xerox process, the Coca-Cola formula, special metal-casting techniques, or special skills in marketing and management.
5. Ongoing problem-solving capability: primarily know-how resulting from experience and necessary to solve, on a continuing basis, production and process problems.

It is obvious that these types of knowledge and know-how are vested in different degrees in various suppliers (Wallender and Boggs 1979).

The problem, from the receiving countries' point of view, lies first in deciding what types of specialized knowledge are required to fulfill their development planning needs on a project-by-project basis. Following such identification, a choice must be made between alternative suppliers in accordance with their ability to deliver the required knowledge at an acceptable "price."

SOURCES OF TECHNOLOGY

For each country at different stages of technological development there are a number of feasible suppliers of technology. Determining which supplier to encourage depends on the type of technology required (planning, design and construction, value engineering, etc.) and the best methods for transferring it (given both the type of technology required and the state of local technological development). Only after these have been answered can the costs and benefits associated with obtaining the technology from different suppliers be determined. In terms of the type of technology, it is clear that countries with well-established technostuctures can afford to buy separate parcels of technology (unbundled or disaggregated technology) and may not necessarily have to import full systems which provide technologies for all stages of the project cycle. However, countries without well developed industrial bases may have to be more systematic in obtaining not only the initial plant, equipment, and start-up technologies, but also access to a continuous stream of ongoing technology. Value engineering and new product development may be necessary to keep the plant efficient and competitive in relationship to global technology change.

The second, and equally important, question concerns the methods of transferring the technology. The appropriateness of the transfer mechanism depends on the ability of the user to acquire and absorb the technology. In some cases, only documentation and equipment may be required to transfer the requisite information. But in other cases, extensive training, learn-

ing visits or long-term exchanges of personnel may be necessary. The method will obviously depend on the type of technology selected and on the ability of the local user to absorb and use the information being transferred (Behrman and Wallender 1976).

There are seven basic sources, each of which can supply certain types of technology and, as a result, use certain methods of transfer. These sources are:

1. General educational programs.
2. Direct foreign investment and ongoing joint ventures.
3. Consulting/engineering firms.
4. Independent licensing, technical assistance agreements and management contracts.
5. Sales of equipment and supplies.
6. Intergovernmental cooperation and assistance.
7. Contributions of private volunteer organizations.

Reviewing the alternate sources, we can make certain generalizations about the types of technologies available from each source, and the fundamental costs and benefits associated with each particular supplier.

General Educational Programs. These provide the essential mechanism through which technical manpower and skilled personnel are developed within any country. Expertly trained engineers, lawyers, and managers must be coupled with an adequate supply of technicians and semiskilled workers to form a complete system. Many developing countries are unable to develop effective managerial and technical skills and to hold those so trained in the country. Much has been said about the "brain drain," and it should be noted that a first step toward building a healthy technostucture is the creation of a sociological and economic environment that provides an opportunity for professional development for the manager, technician, and scientist.

Direct Foreign Investment. This has been a traditional source of technology and capital for many developing countries. The unique aspect of direct foreign investment is that it provides general, industry-specific, system-specific, firm-specific, and ongoing problem-solving knowledge. It also has the greatest capacity to provide long-term development. Unfortunately, direct foreign investment in certain cases has been unable to adapt its activities to the development of technology "appropriate" to local conditions. There are also cases of misuse of transfer pricing, management, taxation, and remittance restrictions.

Direct foreign investment, although it brings training and infrastructure, also brings with it certain foreign control and intervention in the local environment. In most cases, due to the proprietary privileges and product responsibilities of the supplier firm, the multinational corporation will insist on significant control over use, diffusion, and export of the technologies transferred. Unlike the local user, the foreign supplier may be optimizing on the global level and, therefore, have some stake outside the local jurisdiction. This foreign influence over local industrial activities has created significant political reactions and has resulted in major movements to curtail and control the foreign supplier.

Consulting and/or Engineering Firms. Knowledge which is primarily industry specific can be provided through technical experts who are hired to work with local companies for designated periods of time. These suppliers seldom provide long-term technological support, although it is available in certain circumstances and at a high price. These firms traditionally receive direct payment in hard currency for their activities or, possibly, payment in kind (a percent of production or of a local natural resource). The balance of payments impact is immediate for the purchase of technology from this source. However, it does provide a greater amount of local control over the importation and use of the technology.

Licensing, Management Contracts, and Technical Assistance Agreements. These represent major contractual methods through which industry-, system-, and

sometimes firm-specific technologies can be purchased. They may be individual contracts or part of direct foreign investment. In many cases, these agreements provide training and other ongoing maintenance for the licensee. However, in most instances, a licensing, technical assistance, or management agreement deals only with one part of the system. It is generally assumed that the other critical components of the system function efficiently, and will fit effectively with the separate imported technology. Most developing nations, in fact, do not have the technical infrastructure or the industries which are well enough developed to make maximum use of this kind of specialized agreement.

Purchase of Equipment and Supplies. This has been a major avenue for technology importation for the developing countries. In most cases, equipment is purchased, along with company training and assistance programs. However, this kind of activity seldom provides ongoing support to adapt, modify, or use the equipment in any fashion other than that related to its original specifications. The equipment and supply organizations do not benefit from the technological independence of the user, but rather from his long-term association in which repeated sales of evolving technology can be made. Although the user does have significant control of the technology on a day-to-day basis, he is in many ways dependent upon the equipment salesmen with whom he has little bargaining power except to refuse a purchase.

Foreign Government Assistance. This has been a major vehicle for providing certain types of appropriate technology, especially in the area of health and agriculture. Usually these programs are only partially paid for by the user in hard currency, and they tend to have some related political cost. The user country has less bargaining power over a foreign government than over a private supplier. In many cases, the foreign government may be the only organization capable of accepting the risk of making transfers to industries within certain developing countries. Unfortunately, the governmental assistance program, while technically desirable, may be lacking in the dynamism of the more competitively oriented, private commercial activities.

TABLE 1.--Relative knowledge transfer of alternative sources of technology

Technology Types	General education	Direct foreign investment	Supplier					Gov. assistance
			Independent consulting/engineering	Independent licensing	Equip. sales	PVO		
General knowledge	Yes	Possible	Seldom	0	0	Seldom	Yes	
Industry specific	Possibly	Yes	Yes	0	0	Yes	Yes	
System specific	Possibly	Yes	Yes	Yes	Yes	Yes	Yes	
Firm specific	0	Yes	Possibly	Yes	Possibly	Possibly	Seldom	
Ongoing Problem Solving	0	Yes	Seldom	Seldom	Seldom	Possibly	Seldom	

0 = almost never provided.

Private Volunteer Organizations. Such organizations as the International Executive Service Corps or the Pan American Development Foundation transfer a wide variety of technologies to developing countries. These organizations, unlike large corporations or governments, often have goals that are socially more consistent with those of the user country. The basic operating objective of many of these organizations is to serve critical social goals of the developing countries. They are not as sensitive to the problems of profit maintenance as are other suppliers. In many cases, the private volunteer organization may have a wide range of knowledge suitable for transfer, but it seldom has sufficient resources to transfer extensive amounts of technology to cover the entire range of traditional project cycles. The private volunteer organization, however, can be an important alternate source of technology and provide a complementary function to other sources.

Summarizing the different sources of technology, we can see that various alternatives provide different types of knowledge and expertise. The basic trade-off centers on whether the user needs and desires technology for all stages of the project cycle, or whether, in fact, he can

select certain types of system and industry-specific components that can be built into an existing technosstructure. The costs associated with the different sources include direct hard currency payment for services, surrender of some part of the market, or political obligations.

Table 1 summarizes the types of technology normally provided by the various suppliers. The table indicates that the multinational firm provides various types of technology, among them firm-specific. Some writers argue that firm-specific knowledge may be the most critical in terms of developing local industrial capability in developing countries. Naturally, if the receiving country is interested only in import substitution and is not committed to developing the most viable and competitive industries in the initial stages, it may not be concerned about acquiring the most effective firm-specific knowledge. The local government may fear that the multinational firm may become a monopoly, thereby costing more in financial and control terms than it brings in social and economic benefits.

Most of the technology transfer alternatives, as shown in Table 1, fail to provide ongoing sources of problem solving and product development. Through direct

foreign investment, the foreign technology supplier has a commitment to the local user that goes far beyond any initial transfer. This involvement may motivate the multinational corporation to supply firm-specific knowledge of changes, modifications, and improvements so that the user can face new problems brought on by external markets. It is possible that specialized consulting agreements could be set up to supply continuing technology, but there is little evidence that this has ever occurred. In fact, there seems to be a history of tragedies in which key plants have been finished under the initial specifications and have rapidly atrophied. Thus, with all of the sources we have discussed, there are a number of associated advantages and disadvantages.

NEEDS OF ENTERPRISES IN DEVELOPING COUNTRIES

Efforts must be made at the national level to balance and improve the importation and diffusion of technology. This includes upgrading and expanding educational programs as well as improving foreign investment controls and incentives. Yet at the local level, small and medium-size enterprises could play a more dramatic role in economic development if technology and other assistance programs were more carefully linked to their immediate needs and operating characteristics. Following a decisionmaking approach, we can visualize any technology user firm as having first to identify opportunities and needs. This activity is then followed by general planning and a search for different options for acquiring technology. The next stage is the evaluation, bargaining, and negotiation process through which the user firm completes the plan. Once purchased, the technology must be transferred and implemented. Almost immediately the enterprise must begin making productivity improvements and looking for new ways of exploiting the newly acquired technology. Finally, the user may actually acquire his own product development and research capacity to assist in the continuing process of problem identification and solution.

In any given environment, individual firms will be at varying levels of internal capability. Some firms may have

already developed the internal capability to receive and utilize foreign technology. Their immediate concern should be that of acquiring more information about alternative sources of technology. Most of the firms, however, will not have developed the general management capability to begin seeking, much less acquiring or exploiting, technology. The critical problem of the user firm in the developing countries, then, is that of developing organizational capability rather than acquiring new information on technology operations.

These six stages are cumulative. Any attempt to improve the ability of the firm to acquire alternate technologies will fail if the firm has not already moved through previous developmental stages. Many technical assistance programs are mismatched to the needs of the user firm precisely because they are directed at a level of development that the firm has yet to attain.

In addition to the initial problem of identifying needs, the user firm's weakness in managerial resources indicates that it will have severe problems in installing and adapting technology. Therefore, the software type of technology (in the sense of management and skilled technical capabilities) is often in much greater need than aspects of hardware modification or replacement.

The disappointing results achieved by local institutions designed to support their productive sector with research, engineering, and information systems tend to confirm the shortcomings of managerial and technical manpower. A review of the International Executive Service Corps' projects during the last 10 years indicates that, although most IESC projects were commissioned to deal with production or new equipment installation problems, the volunteers in more than 80 percent of the cases had to attack other general managerial problems. In most of these cases, the consultants attempted to install management training and manpower development programs.

Without adequate managerial resources to execute planning and opportunity analysis, the user enterprise cannot evaluate technology options. Technology is acquired in an ad hoc fashion, normally dependent on

contact by equipment salesmen and informal connections of the enterprise to other countries where it gets random ideas and models that might be applicable in its home environment. Clearly, the training and development of managers and technicians represents a priority for dealing with this situation.

CHARACTERISTICS OF U.S. TECHNOLOGY SUPPLIERS

Most large U.S. enterprises are already engaged in different forms of direct investment, licensing, and exporting in developing countries. They will continue to be so according to existing market and international trade patterns. Their ability to share technology and support local development is extensive if the market factors and long-term business rationale justify the commitment. However, there are many smaller firms that could tailor their activities to developing countries and would respond to programs having significantly smaller profit incentives. These firms are restricted from pursuing innovative technology and collaborative relationships in the developing countries for many reasons. Among them are the more attractive and immediate demand in the U.S. market, the lack of their own management experience in international business, inaccurate perceptions of foreign opportunities, and inappropriate information for decisionmaking.

A negative perception exists in much of the U.S. business community regarding the possible opportunities in developing countries. These companies are concerned about the complexities involved in overseas ventures. In addition, many firms have a general lack of confidence in collaborative ventures with developing country enterprises. Many firms are not aware of the resources they have that could be applied in the developing countries. Furthermore, smaller firms do not seem to be aware that consultants and other public and private assistance groups are available to help them organize and deliver programs.

On the other hand, many firms in the U.S. forest products sector are attracted to the developing countries because of their available raw materials and because of possible markets for finished products.

For these reasons, improved technology transfer and collaboration should be feasible if programs can overcome the constraints of limited management resources, negative attitudes, and poor utilization of information. Some additional factors that need to be considered are:

1. Poor availability of information on actual developing country opportunities.
2. Skill in analyzing risk and operating requirements for developing countries.
3. Skill in organizing for technology sales and transfer.
4. Lack of brokerage and facilitator networks.
5. Market demands of the United States and other major developed countries.

The smaller U.S. enterprises can play many roles once properly linked to a user firm. Most important, the U.S. supplier has well-developed management systems that can be transferred through manuals, standards, procedures, models, and diagrams. In addition, the U.S. firm, whether large or small, has extensive capabilities to train technicians and managers in either its domestic or international facilities. This type of training represents the industry and often firm-specific knowledge that is so critical to the enterprises of developing countries. Finally, equipment purchasing and new product or process development can be facilitated by the U.S. firm.

These types of activities are low in cost to the U.S. firm since they do not require significant management time, and since they represent nonproprietary technology in most cases. In contrast, if the supplier firm must transfer and install technology, it must face significant costs of lost management resources and other opportunity losses. Therefore, the U.S. supplier firm is not likely to seek out joint venture or licensing arrangements unless there are clear-cut opportunities for major profits or new market penetration. But they will make available certain important technology if other organizations are available to help organize and

manage the transfer, thus reducing the drain on their management and financial resources.

Overall, the U.S. supplier has many resources that can be of significant value to the user firm. The multinational corporation is available for direct investment, joint ventures, licensing, and other forms of involvement if the market opportunity is large enough. The smaller firm has valuable technology but will not participate unless others can play critical roles in identifying opportunities, packaging, and installing the technology.

DEVELOPING TECHNOLOGY TRANSFER ASSISTANCE PROGRAMS

Little can be done to accelerate investment by larger corporations in developing countries, with the exception of modifying national legislation to make it less risky for multinational business operations. The smaller supplier firms can be engaged with special assistance from intermediate institutions, as previously described. The user firm should be aided in developing an improved capacity to engage both large and small suppliers. The possible avenues of assistance for suppliers and users can be analyzed in terms of their process of technology change and the constraints that affect each stage. A user or a supplier needs to be assisted in the complete process, or technology transfer projects will be inadequate.

Successful projects stem from clear identification of opportunities and problems. Companies will take risks to change technology according to the general nature of their local environments (including tax, investment, import controls, and other legal issues) and their perception of long-term profitability. Clearly, the firms themselves must somehow acquire more skilled management and improve planning. Information, especially industry-specific information, is necessary for effective analysis and decision-making. Above all, the suppliers and users must have positive attitudes about the feasibility of successful technology transfer and development.

In the planning and search stages, management skills are critical, as are the appropriate types of information. In

addition, the firms need to be linked to international networks that can help identify and analyze alternatives. If the participants understand their needs and opportunities, consultants and professional advisors can be used to develop programs and bring the principals into appropriate venture arrangements.

In the evaluation and negotiating stage, the enterprises having limited experience must be assisted by professionals. Often, trusted agents (public institutions, universities, banks, etc.) can develop objective analyses that will provide the basis for effective bargaining and project programming.

During the transfer and technology implementation stage, workers, supervisors, and technicians require both general and specific knowledge. The suppliers, assisted by local institutions or qualified universities, can create effective training and manpower development programs. These educational activities, along with specific assistance in engineering and technical planning, are valuable components of the critical start-up phase. Again, the trusted agent can play an essential role in project organization and management.

Once the technology is in place, the firm must initiate ongoing productivity improvements. Developing better training programs, reducing costs, maintaining equipment, installing product modifications, and designing production changes are ongoing activities that affect the profit margin. Support from local and international laboratories, training institutions, information services, and consultants represents an important resource for the user and supplier firm. Unfortunately, most enterprises are not equipped to plan and manage external assistance programs of this nature.

Finally, in the research, development, and product engineering stage, the firm must make long-term commitments to internal technology change. As the firm begins to develop its own technology, it has an even greater need for access to outside specialists, laboratories, tools, and equipment. Any opportunity to gain effective assistance in building and maintaining its research, development, and engineering capabilities will prove valuable.

Normally, a significant local market opportunity coupled with a positive investment climate will encourage research and development, if the firm has access to critical manpower and hardware.

EXAMPLE OF A LOCAL TECHNOLOGY INSTITUTION

Fundación Chile, a nonprofit science and technology institution, is a good example of a new development program that is organized to effect the complete technology change cycle. The Fundación, jointly owned by the Government of Chile and International Telephone and Telegraph, has its own laboratories, pilot plants, training facilities, libraries, and professional staff. The Fundación is linked to a U.S. technology search organization, Burkholder-Wallender International, and several university and professional associations. The Fundación is organized specifically to help Chilean enterprises through all stages of their technology planning and installation.

In one area, the development of local hardwood plywood manufacture, the Fundación is providing a marketing research staff and certain funds to execute feasibility studies. The U.S. technology search organization was used to help identify U.S. purchasers for the hardwood and qualify firms that would help supply critical start-up and quality-assurance technologies for the proposed plant. Additionally, private volunteer organizations and U.S. consulting firms were identified and organized to provide experts to plan initial logging and port facility development.

The Fundación drew on a wide variety of experts and networks to help organize a continuous flow of assistance to qualify the opportunity, to identify purchasers of the final hardwood plywood, and even to supply technicians to begin logging. In parallel, these industry-specific knowledge resources were combined with the Fundación's expert staff to develop improved proposals and plans which have resulted in better financing for the long-term project. The project ultimately will stimulate a variety of spin-off forestry programs in the south of Chile. Other local experts were used to assist in installing the original programs and to provide follow-up.

In specialty chemicals, the Fundación has followed a similar pattern. U.S. experts were organized to support general training sessions in Chile. These were followed by specific diagnostic and planning visits to chemical companies within Chile. The use of U.S. industry experts and local professionals created a unique resource to help the Chilean companies clarify opportunities and detail options. As a result, certain Chilean chemical plants are beginning to develop specialty chemical processing, as well as new technology sharing arrangements with U.S. and other foreign organizations.

Similar programs are now under consideration by the Fundación, including operations that will support paper and cellulose production. Other studies deal with prefabricated wooden houses and specialty manufacturers of window frames, doors, and other wood building materials. Byproduct processing is also the subject of research and a series of initial planning and seminar sessions.

The ability of Fundación Chile to support these programs is keyed to three major factors:

1. Ability to aid enterprises in direct opportunity analysis and planning.
2. Access and ability to organize a variety of foreign networks for different forms of technology transfer.
3. Ability to provide different resources for the complete process of technology change.

SUMMARY AND RECOMMENDATION

Drawing on the general ideas presented in this paper, we can visualize a number of specific programs, including the following:

- Establish cooperative networks of supporting enterprises and university resources in the United States that can be offered to users in developing countries for continuing technology support.
- Develop industry-specific training programs that help forest products enterprises as well as forestry

agencies identify long-range opportunities and clarify the associated costs and benefits.

- Create a pool of financial resources to assist firms in the developing countries to carry out initial feasibility studies and technology planning.
- Establish information and brokerage networks among supplier firms, facilitating institutions, and institutions in the developing countries.
- Develop cooperative programs with universities and laboratories in the developing countries to help them begin programs that have greater direct utility for their local productive sector.
- Develop U.S. short- and long-term programs to improve managerial capability to plan, search, and organize technology change programs.
- Develop joint programs with organizations in the developing countries to study and recommend policy changes that would directly improve the environment affecting technology growth for local enterprises.
- Develop and distribute cases that clarify and demonstrate how technology needs are identified, how technologies are located, and what benefit they generate if effectively installed and updated.
- Develop industry-specific training for U.S. suppliers that provides detailed guides encouraging them to seek out opportunities in the developing countries.

- Improve direct links among science and technology institutions in the developing countries, U.S. institutions (such as universities), and the user and supplier enterprises. These networks should be organized to provide application assistance, not basic research and analysis.

Economic development requires effective technology transfer and cooperation. New networks must be formed in such a way that the user firm can be assisted in formulating clear-cut plans, as well as in gaining access to necessary assistance. An aggressive association of overseas institutions with U.S. public and private institutions could make available a collective approach for the user enterprise. It could help reduce user risk and promote effective growth. Intermediate, linking organizations will play a decisive role in organizing and directing such a collective effort in the forest products sector or any other commercially oriented sector of the developing world.

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PRIVATE ENTERPRISE IN THE FORESTRY SECTOR: DIRECTIONS FOR AID

Hans M. Gregersen

INTRODUCTION

The key goal of AID's private sector emphasis is to create an environment of economic opportunity conducive to the development of indigenous private sector (McPherson 1982).

This statement by the administrator of the United States Agency for International Development expresses the thrust of a major AID initiative, which is supported by the fact that over the past two decades, "...those LDCs [less developed countries] which have grown the fastest have followed market-oriented policies which encourage the growth of private enterprise...." From these statements and other AID documentation (U.S. AID n.d., 1982a,b,c) the following key issues emerge with specific reference to a future AID forestry effort.

1. AID recognizes that force-feeding the private sector does not help to develop a stable, free enterprise system. Therefore, concentrating on creating a conducive environment for private, forest-based business is appropriate. AID efforts should focus on assisting countries with the design and implementation of policies which will stimulate national economic development through private enterprise expansion. Several key policy areas associated with forestry development merit particular attention, including ones related to financing, incentives, taxation, resource availability, trade, and employment.
2. If the U.S. wants to support countries which "follow market-oriented policies," then AID has to be concerned as much with discouraging large, private monopoly as it is with discouraging public enterprise and control. The most stable and effective market economy is built by a large middle class and a large number of small- and medium-scale

private businesses operating in a fairly competitive environment. Many forest-based activities and products are ideally suited for labor-intensive, small- and medium-scale enterprises. AID should focus on the needs of these types of industries and activities.

3. Political realism (evident in some AID documents) indicates that while AID pursues its (new) emphasis on private enterprise initiative, it should not abandon its commitment to public and mixed enterprise activity related to forestry. In other words, we are talking about a change in emphasis, not a total change in direction for U.S. activity. Continuity with incremental change is the order of the day, even when private enterprise activity is to be emphasized.
4. Stable private enterprise economies need diversity of opportunity in order to thrive and even survive. Most countries have a variety of talents and resources available to produce a broad range of forest products. A major challenge is to develop a variety of national and international opportunities to market those products. Many of the opportunities, scarcely touched in some countries, involve integration of forestry with other activities, e.g., hydropower development, agriculture, and rural development.
5. AID will have limited resources to devote to new forestry efforts, so projects have to be chosen very carefully to maximize their potential demonstration effects and the likely adoption of results beyond the project boundary.

Skills and technical resources are needed to implement the efforts mentioned above. Fortunately, the United States has

a tremendous capacity to provide most types of needed technical assistance, including training, applied research, project planning and management support, and general forestry and forest products education. It has pioneered in the use of low-cost minicomputers--one of the areas that merits particular attention in terms of supporting private enterprise development in developing countries. Further, AID's Forestry Support Program is developing an effective system for tapping U.S. expertise and talents.

In sum, it appears that availability of technical resources and skills should not be the limiting factor in new U.S. efforts in the forestry sector. Rather, budget limits and host country conditions will probably create the main barriers. Discussion of budget limits is not appropriate in this paper; thus we turn to the question of host country conditions in relation to an appropriate U.S. approach.

HOST COUNTRY CONDITIONS AND U.S. ACTION

While basic strategies and issues can be identified in a general context, concrete actions require country-level focus, analysis, and design. Each country will require a somewhat unique "package" or combination of project elements to ensure maximum effectiveness. Chosen projects should be designed to stimulate private entrepreneurial interest, increase knowledge of opportunities, and ensure that entrepreneurs have the ability (financial and other) to undertake expanded investment. Together, the requirements and the existing policy environment should determine the focus of AID initiatives in a specific country.

Sector Analysis and Private Enterprise Development

Despite the criticisms of "sector analyses" put forth by many, certain types of sector studies or reviews can be useful in identifying program and project priorities and relationships. Most often the criticism is leveled at the academic, highly quantitative, often very expensive, exercises which appear to be done more because of an interest in methodology than because of a need for the results. It should be clearly understood that the discussion that follows refers to practical, simple, end-use oriented analyses.

We use the term "sector review" for the type of exercise advocated here as a first step in development of the AID country-level, private forestry initiative. This requires a 4- to 6-week in-country exercise in information collection, synthesis, analysis, and interpretation, by a minimum of two or three experienced persons. Such a sector review might include the elements indicated in Figure 1.

Once a general overview of sector relationships is in hand, the review team identifies specific policy and program needs. Using Worrell's (1970) classification, they would focus on (a) means to motivate private enterprise through various types of incentives and policy changes, (b) means to increase understanding in the business community of opportunities and needs, e.g., through training programs, applied research and development work, establishment of national information systems, and (c) ways to increase the ability of entrepreneurs to undertake new projects, e.g., through financing, market development, or nongovernment trade association programs.

The next task is to design preliminary project ideas, taking into account public and private interests and support; work being done by other institutions, both public and private, national and international; and results of the "needs" identification effort just completed. These ideas must be checked with AID mission personnel and discussed with host country officials and business representatives. In most countries there will be no scope for an AID effort unless both public and private support is forthcoming. A critical need here is to set priorities. If the result of the sector review is a mere "shopping list" of alternative opportunities, then it will be of little use.

The final step in the sector review is to prepare guidelines for the design of specific projects to address the policy priorities identified above, i.e., those related to enhancing interest, ability, and knowledge of opportunities.

Several points bear emphasis with regard to the sector review and project identification exercises. First, it is essential that experienced persons be included in

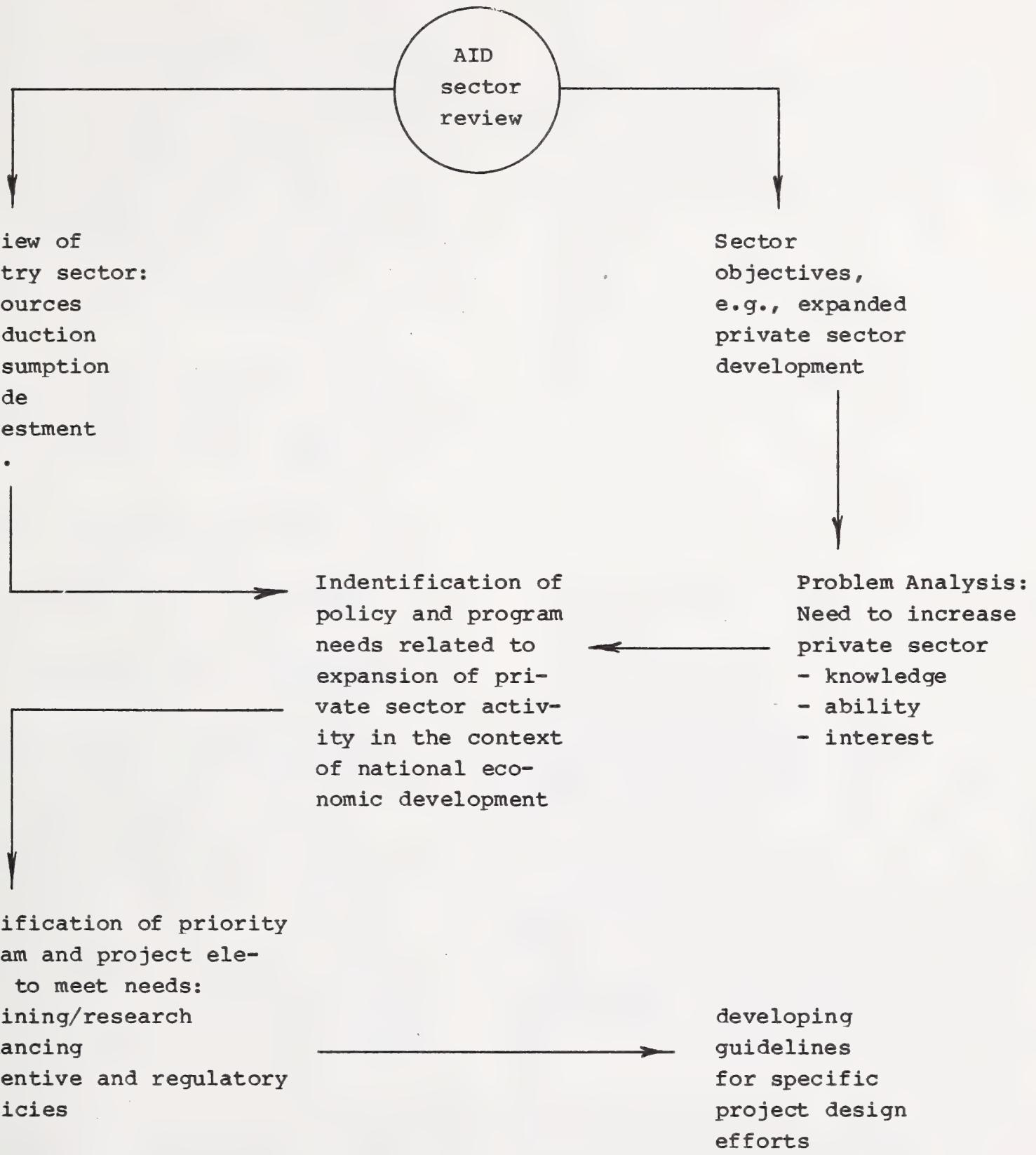


Figure 1. Forest sector review to identify potentials for private sector initiative.

such efforts. This is particularly critical, given that what is proposed here is a systematic exercise in applying informed judgment.

Second, the team should bear in mind that AID has limited resources and probably has little leverage in most countries. Thus, it is essential that the team focus only on opportunities which have both substantial country support and substantial demonstration effect potentials.

Third, it is essential that the team not spend too much time on any given element in the total system until priorities have been identified. One thing we know from experience is that flexibility is needed. Eventual developments will seldom turn out as initially envisioned. With the long time periods involved in forestry projects, this point is particularly critical.

Fourth, the AID team should, to the extent possible, interact with other institutions involved in forestry in the country in question. Although one may encounter the whole range from no response to full cooperation in different countries, one can at least explicitly attempt to encourage interaction and cooperation.

Finally, based on experience with a number of sector reviews, the conclusion emerges that there is no need for expensive, sophisticated, quantitative modeling. Such efforts may be more usefully applied for various other purposes, for example, if the country itself wishes to develop a better overall forestry development framework (both public and private).

Private Enterprise Activity and AID Project Development

AID is a public institution that wants to help promote private enterprise development. This relationship could cause some misunderstandings. Thus it is essential that AID specify quite clearly the types of projects which it will support or finance.

As an obvious safeguard, AID might limit itself to areas and activities in which private enterprise either will not or cannot act efficiently. For example, certain types of international forest products

marketing information can be more effectively generated and synthesized by a publicly funded institution which then makes the results available to all. Certain types of applied research often can be carried out most efficiently by private firms; at other times it can be done more efficiently by public agencies and made available freely to all entities in the private sector. The mix of public and private involvement is determined on the basis of discussion, negotiation, and debate. Each item will have to be considered in terms of the particular country.

In general, the six areas mentioned by Laarman and Dutrow (1982b) are the areas in which a public agency might have a role to play. These are:

1. Feasibility studies and related pre-investment assistance.
2. Brokering, or "matchmaking."
3. Management training and related assistance.
4. Technology access and transfer.
5. Infrastructure development.
6. Financial institutions and sources of funds for enterprise.

The role of AID in large-scale industry development probably is limited. Large companies can carry out development programs much more efficiently and effectively than AID or other government institutions. Rather, it is suggested here that the focus of AID should be on small- to medium-scale entrepreneurial activities predominantly centered in rural areas. Within this focus, AID could provide a variety of services and support elements. A key here is flexibility.

Laarman and Dutrow (1982a) present a number of ideas for private enterprise initiatives in forestry. One need not repeat a detailed list at this point; the choice of appropriate elements will depend upon a given country's situation. The sector analysis would bring out the possibilities.

The general categories of project activities that AID could consider are described below.

Project Activities to Overcome Lack of Knowledge. In many cases the main barrier to expansion of private enterprise activity is a lack of knowledge of the opportunities available. Other knowledge gaps also may exist with regard to how to prepare a project for financing, how to generate information on appropriate technology, how to price and market outputs, or how to use minicomputers to increase productivity of operations. The particular information needs will vary from country to country, although some gaps in information are widespread enough to merit the suggestion that programs be organized to deal with them at the regional level.

For example, in most developing countries there is a critical lack of knowledge regarding the appropriate way to prepare forestry projects for financing.

This holds for both public and private projects. AID could usefully support a course on project preparation oriented toward small- and medium-scale, forest based enterprise. Such a course could cover the basic financial elements as well as selected other technical subjects. The desired result would be entrepreneurs who have a knowledge of where they can go for appropriate information, what information is needed by potential financial lenders, and so forth. Attendees could include consultants and selected entrepreneurs. In some countries, government extension workers dealing with forestry and forest industry development could also attend.

At the present time, no such course is offered internationally. The on-going efforts (e.g., the World Bank in April 1983, and Oxford, annually) are oriented more toward social forestry and public project preparation. The same is true of the forestry literature in the development field. AID could contract for such a course through the FAO or UNIDO, which have experience in the training area, or the course could be developed directly by AID.

Other areas which are considered important in terms of knowledge creation and diffusion include the following:

1. Networking to expand the international exchange of existing forestry research and to expand forest industry technologies and markets for various species/products. One possibility is the experimental establishment of a regional center to identify networking priorities and to develop efficient methods of obtaining and disseminating information internationally.
2. Support for comparative studies related to topics of importance in private enterprise development in a number of countries. This work could most usefully be done on a contract basis with experienced independent institutions. The work should include an explicit element related to diffusion and use of results in project planning. Some examples of useful efforts include the AID-sponsored work on firewood executed by the National Academy of Sciences and the work on tropical wood utilization done by the USDA Forest Service Forest Products Laboratory.

Project Activities to Increase Ability to Invest Successfully. Potential private investors sometimes have adequate knowledge to invest in forest-based activities, but they do not have the financial ability to do so. For example, there may be a long wait between investment and returns. The main financing problems encountered in the forest-based sectors of developing countries were indentified for a recent forestry sector investment conference (InterAmerican Development Bank 1982). The conference report discusses the main financing problems--which apply to Asia, Africa, and Latin America--and the potential actions that an international aid agency can take to alleviate the problems.

In most cases, the main barrier is financial ability. Most other "ability" bottlenecks can be solved if the financial support is available. In many cases, major financing bottlenecks are more appropriately dealt with by regional or international development banks than by agencies like AID.

Project Activities to Increase Interest. In many respects, this is the most challenging and interesting area for AID

involvement. It often is also the politically most sensitive. Activities to increase interest comprise policies and programs which encourage private investment (or the removal of those which discriminate against it) and the establishment of various direct and indirect incentive programs. Public policy toward private enterprise development is most critical.

The use of public incentives is common in the development of the private, forest-based sector. The variety of measures is great. A convenient listing of incentives that might be considered in the context of AID projects is shown in Table 3 of Gregersen and Plochmann (1983).

If both ability and knowledge exist, then the final effort to achieve an expansion in private initiatives may well be the establishment of a direct incentives program, e.g., one which provides planting subsidies, subsidized credit, and so forth. Quite often, however, some fundamental policy changes must be considered by the country before private enterprise will have an interest in making long-term investments. For example a most critical factor in establishing a positive investment environment is policy continuity and stability.

Through its sector reviews and previous experience, AID can identify needed policy changes and possibly establish precedence among them. Beyond that, the question of how AID goes about influencing changes, particularly given its generally low level of leverage in most countries, is something which requires careful analysis. Academic generalities are of little use here.

MARKETS AND MARKETING: POTENTIAL AID FOCUS

A common cause of lack of private forestry activity is lack of markets, or at least a perceived lack of markets. AID could develop measures across the board to deal not only with lack of interest but also lack of knowledge about market opportunities, lack of ability to enter markets, and lack of ability to finance marketing.

Many countries tend to be single-product oriented, thereby passing up opportunities for expansion through product and market diversification. The United States could help such countries develop the knowledge and ability to diversify. Literally thousands of potential forest products could be considered in such a market-expansion project.

Small- and medium-scale, private, forest-based enterprises in some countries do not know where to go to get useful market information. In some cases they do not even know what information would be useful for making production and marketing decisions. AID could help provide training for market analysis skills, help establish local private enterprise associations to generate appropriate market information, act as a "matchmaker," and find appropriate larger companies for "piggybacking." One example of a systematic approach to this problem is discussed in Gregersen (1971).

Many small- and medium-scale enterprises often do not have the needed resources to carry out a market development effort. For example, introduction of a new species into an export market in a developed country can be costly and time consuming.

Many other areas of endeavor related to markets and marketing could usefully be tackled by AID, using a pragmatic systems approach, i.e., an approach which pays attention to the fact that this is only one link in a successful private enterprise initiative in a given country.

AID FORESTRY ACTIVITY IN A BROADER CONTEXT

AID support for private enterprise development in the forest-based sector has to be considered in the context of a broader strategy for private enterprise development.

There is a need to expand the AID forestry program beyond traditional narrow boundaries of the forestry sector. If one looks at development experience over the past 10 years, much of the successful forestry assistance has involved integration of forestry with agriculture, rural development, and soil conservation projects,

for example. A broader strategy is advantageous, both in terms of integration of forest policy with national policies related to land use and trade, and in terms of getting local populations interested in supporting an industrial development project. In such an environment, small landholders, other individuals and community groups can build stable enterprises based on the initial thrust provided by a major industrial project. The PICOP experience in the Philippines is a good example of this type of development.

Policy changes in the forest-based sector cannot be looked at properly if one disregards the implications for other sectors. This is particularly critical when encouraging private enterprise, since entrepreneurial response is extremely sensitive to changes in policy and differential policies between sectors. For example, an incentives program for forestry development through subsidized credit might be effective from the viewpoint of the sector but might be counterproductive in the broader view of land use and economic development in the country. At some stage the recommendations (at country level) for a forestry program have to be judged in the context of overall aims for the country in question. Some issues, such as those related to interest rate and price policy, should be handled in a national context.

A similar perspective needs to be taken with regard to industrial development. Although small- and medium-scale forest industry development is highly desirable and could contribute to development in many countries, the way in which a country provides the helping hand to such small entrepreneurs can greatly affect the overall development of the country.

The World Bank approach provides a good example of how small firms can be encouraged without the development of an elaborate "special favors" program. Basically, the bank fosters measures which (1) reduce preferences that favor large firms and discriminate against small ones, (2) increase the marketing opportunities for small firms, (3) support entrance into various types of markets, and (4) enhance the availability and efficiency of various inputs commonly used by small firms (Marsden 1981).

IMPLEMENTATION OF RECOMMENDED PROGRAM

In summary, AID could support expansion of private forestry enterprises as a tool in national economic development by taking these actions:

1. Choose some initial countries to work with, using some basic criteria such as country support for private enterprise development, country support for AID involvement, present level of forest-based activity, and a rough approximation of potential (based on existing knowledge and interaction with multilateral agencies). At this early stage, the choices could be made rather quickly, with the most obvious choices being picked first for a test phase.
2. Carry out a sector review. The result will be the development of a relationship with key persons in the host country and a set of priorities for specific types of actions which could be supported by AID to overcome barriers to expanded private enterprise activity. The barriers would be those related to existing levels of interest, knowledge, and ability. The types of actions would be those in the areas of education/training, policy design, incentives programs, financing, applied research, and so forth.
3. Provide necessary backup support to country missions in designing the specific projects identified as having highest priority in terms of chance for success and potential for widespread adoption of results. Such support could include the results of initial comparative work carried out by AID/Washington.
4. Develop a practical monitoring system so that an incremental learning process can be put into effect, i.e., so that the efficiency and effectiveness of future efforts can be improved. At the same time, such a system could provide support for later subsequent evaluation, carried out along the lines of AID's already well established approach.

The question arises as to who should be involved along the way from initial sector

review to completion of country projects. Particularly during the initial development phases of the exercise, AID should take maximum advantage of the talents which exist outside the agency in the United States and in host countries (e.g., local entrepreneurs). Expertise in the World Bank and other multilateral agencies (e.g., the FAO, IDB, ADB and others) should be tapped on an advisory basis.

At the same time that AID taps outside resources, it should be building up expertise internally. This means that working relationships among AID personnel and outside contractors will need to be established and that AID should concern itself with the technical aspects of the projects as well as the administrative functions.

A minimum of 3 years is needed to achieve private enterprise response to the AID efforts. One cannot expect immediate payoffs, other than in the local project environment. The major demonstration and training effects will probably start to show up about 2 to 3 years after initial innovators or adopters have shown what actually can be done. Similarly, market development efforts tend to achieve results rather slowly. One cannot hope to introduce new species or forest products and have immediate, widespread acceptance.

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SCREENING DEVELOPING COUNTRIES FOR FORESTRY PROJECTS: A METHODOLOGY

J. E. de Steiguer, Gary D. Kronrad,
Catherine A. Albers, and Patrick B. Durst

This paper presents a method for "screening" developing countries in order to determine their suitability for forestry development projects. The screening method is based on economic factors of production and institutional constraints. It was developed independently by the authors, but it does have a number of intellectual antecedents, particularly Samuelson (1976) and Stobaugh (1969).

The screening process has dual utility; first, it indicates those countries in which forestry projects are most likely to succeed and, second, it isolates areas in which AID economic assistance is likely to be most fruitful. The first part of the paper attempts to provide the reader with the context in which the methodology was devised. The second part outlines the screening process and presents conclusions concerning the potential benefits of such a system.

THE BACKGROUND

Goals, Means and Sectors

McPherson (1982) states the principal goals of AID with respect to providing economic assistance to developing countries. Those goals are:

1. Alleviation of poverty among the world's poor.
2. Achievement of self-sustained growth with equitable distribution of benefits.
3. Encouragement of the respect for and enhancement of civil and economic rights.
4. Integration of developing countries into an international economic system.

The best means of achieving these goals, according to current AID thinking, is to stimulate indigenous private enterprise in developing countries (U.S. AID 1982b).

Furthermore, AID (1982a) has concluded that the best methods for stimulating private enterprise development are to:

1. Assist in financing desirable private enterprises in priority sectors of developing countries.
2. Transfer technical, managerial, and marketing expertise from the United States.
3. Stimulate the flow of private U.S. capital into priority sectors in developing countries.

This philosophy of encouraging private enterprise reflects the attitudes of the current administration (Lubar 1981). The essential idea is to help those countries that are ready and willing to facilitate free enterprise. The list indicates general AID activities that may foster private enterprise development in so-called priority sectors. The priority sectors may vary with countries, but forestry must definitely be included among the sectors worthy of immediate consideration. AID has recently been given a number of explicit congressional mandates to devote more resources to forests and forestry-related problems in developing countries. Section 118 of the Foreign Assistance Act authorizes AID to develop and strengthen "the capacity of less developed countries to protect and manage their environment and natural resources." Section 118 was further amended in 1981 to express congressional concern "about the continuing and accelerating alteration, destruction, and loss of tropical forests."

From the foregoing, then, we see that AID seeks to bring about economic improvement through fostering private enterprise initiatives in selected economic sectors such as forestry. However, an important question remains: How should AID screen countries in order to determine which are most suitable for forestry projects?

Current Screening Techniques

It is our interpretation that AID (1982a) currently employs two levels of screening. The first is a political screen to select those countries which conform to the following criteria: (1) existence of a viable private sector which is encouraged and supported by the host government, (2) strategic and commercial importance to the United States, and (3) presence of an AID mission. The second screening process is one in which individual project ideas (investment opportunities) are obtained from a variety of sources such as U.S. commercial lenders, indigenous private enterprise, host governments, AID bureaus and missions, and so forth. These project ideas then undergo a rather rigorous review based, essentially, on their economic viability.

Thus, AID currently uses a political screen of countries and then begins to examine projects within the countries. Indeed, this may be the most efficient approach. However, as noted earlier, other writers have suggested that countries be screened on the basis of so-called economic fundamentals or, in other words, the economic factors of production. This approach is suggested by the authors of this paper as a complement to the current screening methods. In the context of the overall planning process, our screening method could take place either before or after the political screening, but certainly it should precede the examination for individual projects.

THE SCREENING METHODOLOGY

It is generally assumed that market mechanisms, when allowed to operate freely, will provide incentives to which private enterprise will respond. Private enterprise initiatives can be successful if the social, economic, and political climate of a country is favorable. A screening technique, which uses a checklist and rating system, can be employed to determine whether those factors that influence private enterprise development will constrain the development of a business venture in a particular country. By using the same checklist for all countries under consideration for possible alternative investment sites, one can determine the country or countries best suited for immediate private enterprise investments. Individual project analyses may then be

performed. For those countries that show a deficiency in an important factor of production, AID and/or the host country can concentrate efforts toward improving the problem area. Once the problem is corrected, indigenous private enterprise development can proceed and foreign private capital can be attracted.

Screening Technique

Following the work done by Stobaugh (1969), a checklist, such as that appearing in Table 1, can be constructed for determining a country's investment climate. The row headings are factors that influence private enterprise development and the column headings would be those countries under consideration for investment. The rows consist of those factors which influence the investment climate. Among them are the major factors of land, labor, capital, and entrepreneurship, as well as institutional constraints.

The land factor should represent the availability of the natural resource needed for the business venture to succeed. Labor should portray the general population and the specific work force needs of the investors. The capital inputs relate to money and physical inputs needed. Entrepreneurship should portray the attitudes, character, and availability of risk takers, markets, and local businessmen. The institutional constraints must describe the legal and political factors which face the investor.

A checklist may be employed using a 1 to 5 rating scale for any particular factor under consideration. For example, assume that AID wants to encourage a foreign investment in fuelwood plantations and charcoal plants. Many countries may be considered likely candidates for this type of investment, but how is the choice to be made? By employing this checklist, all countries may be compared using the same criteria. The countries with the highest numerical scores, that do not have deficiencies in key factors of production, would be deemed the most likely candidates for project activities.

Checklist Methods and Pitfalls

Basically, four methods can be used to complete this screening checklist: grand

Table 1. An example of a checklist for determining the investment climate of different countries.

Factor	Country	Factor	Country
LAND (natural resources)		ENTREPRENEURSHIP (continued)	
Quality		Ability to use information and locate technology	
Quantity		Ability to plan and organize technology and investment programs	
Ownership patterns		Entrepreneurial tradition	
Opportunity costs		Biases regarding management and technical integration	
Availability of inputs		Local R & D support environment	
Protectional problems		Local market size	
Constraints on management		Availability of local entrepreneurs	
Environmental conditions		Information on options and opportunities	
Population pressure		Markets for products	
LABOR (population)		Self-confidence and attitudes regarding local capabilities in business development	
Quantity		Trade associations	
Health		INSTITUTIONAL CONSTRAINTS (political/legal)	
Education		Tariffs and trade restrictions	
Availability		Timber concessions	
Relocation costs		Timber pricing policies	
Demographics		Import substitution policies	
Division of labor/social roles		Incentive programs	
Management experience		Tax regulations	
Skills		Depreciation allowance rates	
Technical experience		Tariff rates	
Appreciation for changes		Wage and price stability	
Ability to be trained		Import constraints	
Labor-management relations		Contradictory local legislation	
Volunteer and cooperative ethic		Government support for business	
CAPITAL		Local support networks	
Stock of capital		Restrictions and red tape	
Rate of formation		Corruption	
Barriers to foreign capital inflow		Capital repatriation allowed?	
Infrastructure		Foreign ownership allowed?	
Potential for earning foreign capital		Rules of the game clear?	
Multiplier effect		Present development strategies clear?	
Availability of tools and spare parts		Discrimination and controls: foreign vs. domestic businesses	
Communication network		Willingness of government to grant tariff restrictions	
Credit availability		Political stability	
Plant and equipment availability		Presence of exchange controls	
Stability of domestic prices			
ENTREPRENEURSHIP (technological change)			
Innovation			
Leadership			
Cooperation			
Current state and private forestry organizations			
Horizontal and vertical integration potential			
Appreciation of management values			

tours, "old hands," Delphi technique, and quantitative methods (Rummel and Heenan 1978). The grand tour method requires an individual or team of people to visit each country under consideration. Local leaders are contacted and conferences are held with businessmen and government officials. After gathering the appropriate data, the checklist is completed. A disadvantage of this technique is that it suffers from an overdose of selective information fed to the evaluators by biased individuals.

The "old hand" technique involves the hiring of educators, businessmen, diplomats, journalists, or other professionals who have expertise concerning a particular country. One disadvantage of this method is that implicit faith must be put in the judgment of these "experts." Another is that at least one expert is required for every country under consideration. And because the rating scale is subjective, it may be difficult to compare the ratings across countries.

With the Delphi technique, a group of experts is assembled and asked to rank the factors of production in each of the countries. Unfortunately, the panel of experts cannot be well versed on all the

countries under consideration. Therefore, like the "old hand" technique, there is an inherent bias.

The quantitative methods technique attempts to describe the underlying relationships among the various factors of production and to predict future trends based on current and historical information. Unfortunately, this technique is costly and time consuming.

There are several constraints in any checklist screening technique which the user must bear in mind. First, because the rating scale is subjective, it may be biased if different people do the ratings. It is recommended that one person complete all of the checklists for a given project, or that the same person complete the same parts of the checklist for all countries under consideration.

Second, different forestry projects require different factor inputs for success. For example, the type of technical experience needed for a forestry plantation project is different from that needed for a charcoal plant. Therefore, the checklist must be completed with a certain project in mind.

Third, as with any rating scale, it is often difficult to assign the proper weights for each criterion in the checklist. Therefore, research must be done to develop the proper weighting system on a case-by-case basis.

CONCLUSIONS

AID (1982c) has called for the need to discover what is happening in an economy, define the areas that constrain entrepreneurs, and find ways to correct the constraints so that the market can operate freely. Current budgetary constraints require AID to be more efficient in budget allocation while expanding the role and opportunities for private enterprises in developing countries. If AID adopts the technique proposed in this paper, it is envisioned that the agency will undertake those projects in which the funding will effectively ameliorate those factors that constrain private enterprise investments. The result will be the creation of an investment climate that will attract greater private enterprise activity.

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THE CHOICE OF DEVELOPING COUNTRIES FOR FORESTRY PROJECTS

P. A. Harou

INTRODUCTION

Forestry development should be planned with a clear idea of the importance of the forestry sector in the economy of a country and should be implemented through a set of forestry projects carefully identified by a sector analysis. The degree of sophistication of the forestry sector analysis will depend on the level of development of the country and on the importance of its forest resources. In the first stage of development, the forestry sector will be studied in a rather elementary way; most of the study effort will be devoted to forestry appraisals that consider macro objectives for the sector (Harou 1980). At a later stage of development, the sector analysis will be more detailed to include marketing studies, evaluation of price trends, and so forth.

The factors to be considered in the selection of countries for the implementation of forestry projects can be discussed according to different philosophies. Should the private sector or the public sector undertake the forestry activities for a given country? Whatever the policy followed, the factors influencing the choice of a country are similar, but the constraints faced in project implementation may be quite different.

A MODEL FOR FORESTRY SECTOR ANALYSIS

Various types of models could be used to order the information describing the economic importance of a forestry sector. An input-output model is probably the most detailed model to describe the importance of forestry and to simulate forestry development under alternative policies and investments. The input-output model of the Ivory Coast is a case in point.

In comparison, some sector analyses are highly simplistic. For example, they may qualitatively describe forested area by important types and comment on the deforestation trend.

These are two extremes. The input-output model is irrelevant for most developing countries which have little information to feed such models, and which have a very low budget for such an exercise. The simplistic methods lack rigor. A model that forces a rigorous approach for gathering the information, but that leaves plenty of room for future data base improvement, seems more appropriate. Such flexibility is exemplified by the "gap model" (Adams and Haynes 1980).

Much information can be gathered and an equilibrium price can be forecast by this method. The 1980 Resources Planning Act assessment is an example (USDA 1981). The methodology is sufficiently flexible to utilize information at a low level of detail. An example is provided by the AID forestry project in Ecuador (Harou 1982).

LESSONS LEARNED FROM EXISTING PROJECTS

An inventory of countries in which forestry activities have been carried out by various development agencies is summarized in a USDA Forest Service publication, "Forestry Activities and Deforestation Problems in Developing Countries" (Zerbe et al. 1980). This study classifies forestry activities into seven groups: industrial, conservation, education, research, reforestation/afforestation, integrated rural development, and technical/administrative/management assistance. The statistics indicate that priority is given to industrial activities. Reforestation and afforestation activities are a distant second, along with integrated rural development activities. The forestry investment component of rural development projects is not always clearly specified in the project descriptions, and the authors of the study have assumed that 5 percent of the total investment goes for forestry activities.

The lesson to be learned from past forestry projects is clearly that a series of

constraints specific to individual countries, projects, and donor agencies has to be considered thoroughly in order to have a successful project. A measure of success is difficult to define and depends on whether the evaluation is made by the donor or the recipient. A good criterion for both is the extent to which the forestry project activities are replicated once the donor involvement ends. By that standard, few projects may be called a success.

The experience gained to date needs to be carefully studied in order to identify and appraise similar projects more accurately in the future (Harou 1979). The choice of projects for particular countries could be made more appropriately if such studies were available. The type of forestry projects that have been especially successful for some countries should be tried in other countries mutatis mutandis. It is also crucial to improve the appraisal of forestry projects that too often lack technical rigor.

GUIDANCE FOR CHOICE OF COUNTRIES

AID, like many other bilateral agencies, was created to help meet the basic needs of the world population. The overall objective of U.S. bilateral economic assistance is to stimulate broadly based, self-sustaining economic growth in developing countries that promotes international peace and stability and that assists people to conquer poverty, hunger, illness and ignorance (Sections 101 and 531 of the Foreign Assistance Act as reported in USAID 1982). Two of the most pressing needs, food and shelter, are directly related to the forestry sector.

Given this goal of ensuring self-sufficiency in fulfilling basic needs, the factors to be considered in the country selection process are related to the population characteristics of a given country; its economic, food, water and energy situation; and, for forestry projects, the importance of the forestry sector to the people, the economy, and the environment.

The characteristics of a population such as its density, rate of growth, mortality, health and literacy, etc., are often related to the other factors we would wish to consider. Among them are the economy,

food supply, the energy situation, and land availability. These data on population characteristics provide some indication of the problems of a developing country and its dependency on outside assistance.

The choice of countries cannot be based just on the weighting of basic needs, however. A multitude of other considerations apply.

One of them is the institutional and technical capability of the host country. Very often, there are no reliable administrative and technical personnel to serve in the projects offered by bilateral agencies. Sometimes the donor agency itself does not have the expertise to adequately manage an overseas forestry project. To overcome such problems, many forestry aid programs focus on education, institution building, and planning.

One of the constraints in the present selection process is to engage private enterprise in forestry projects. Of course, the type of forestry projects proposed will determine the kind of private enterprise to respond. If the importance of local private enterprise is stressed, some countries that urgently need forestry aid may be ranked low on the priority scale. The position of some other countries may be enhanced. Thus, while stimulating the flow of private technical and financial resources is a laudable goal, its implementation to satisfy the forestry needs of developing countries will have to be studied carefully.

RANKING THE COUNTRIES

If we recognize that these factors--and some others that may have been omitted--are relevant, a quick and simple method should be used to classify the information in a management system. The forest manager familiar with multiple-use techniques knows how the McHarg (1969) overlay mapping approach is used. The superimposition of overlays describing population density, food availability, forest cover, water and energy production, etc., will point to some countries that deserve priority for new forestry projects. Other less formal systems could be used to retrieve and display simple statistics

relevant to the choice of countries. Similar methods could be used to find the most appropriate location within selected countries for implementation of forestry projects.

A disadvantage of this ranking system is the broad classification of measures derived from world statistics, which are often only approximate. The ranking of countries will also vary greatly depending on the weight attached to the different factors and constraints that make up the selection criteria. These weights imply heroic value judgments.

CONCLUDING REMARKS

The guidelines for choosing developing countries in which to implement forestry projects differ little from the guidelines that could be used for any other development projects. Six major factors should be considered: the population of the country; its economic performance; its food, water, and energy situation; and the extent, importance, and characteristics of its forest cover. A series of institutional and technical constraints will affect the country selection, also.

An approach that contracts private enterprise in the United States is probably a very good way to have projects initially identified, appraised and implemented by the bilateral agency. AID has been using this approach successfully for more than a decade. The involvement of consulting or industrial firms in the developing countries themselves has been rare, however, and should be favored in the future. This will permit indigenous private enterprises to learn to appraise and administer projects, and they will benefit from the results.

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HOW DEVELOPING COUNTRIES CAN ASSESS THEIR POTENTIAL FOR WOOD PRODUCTS EXPORTS TO THE UNITED STATES: A METHODOLOGY

James E. Granskog

Export growth currently occupies a key role in the economic development plans of most developing countries. Escalating oil prices during the 1970s have forced nonoil developing countries to borrow heavily to finance energy imports. Many oil-producing developing countries also have heavy financial obligations. Expansion of exports is needed to generate foreign exchange earnings, both to meet debt payments and to sustain economic development. To the degree that developing countries have underdeveloped or underutilized forest resources, forestry sector development has the potential to play a significant part in promoting economic and export growth.

Currently, the United States Agency for International Development is designing a program to advance both the internal and external private enterprise role in the forestry sector in order to assist economic development. One area for potential focus is the export market for forest products. Regarding this possibility, the Foreign Assistance Act explicitly declares it "to be the policy of the United States to encourage the efforts of other countries to increase the flow of international trade," and "to encourage the contribution of United States enterprise toward the economic strength of less developed, friendly countries through private trade and investment abroad" (U.S. AID 1982a). In addition, AID has a mandate to provide information and assist developing countries to further forestry sector development (U.S. AID 1982b).

Market access is one necessary condition for successful export-led development. The United States represents the largest potential market for many developing countries. However, many small- and medium-scale, forest-based enterprises in the developing countries do not know how or where to get useful market information (Gregersen 1971). Developing a systematic approach for these enterprises to assess the potential for wood products exports to

the United States would provide an important first step toward this end.

This paper outlines methods whereby governments and/or forest enterprises can assess their potential for shipping wood products to the U.S. market. It encompasses identification of products to export, how to get products to the market, and how to assess economic feasibility. Its primary purpose is to serve as a guide for individual studies by the developing countries.

IDENTIFYING PRODUCTS TO EXPORT

Two steps are necessary to identify potential wood products that might be exported to the United States: (1) analysis of U.S. import data to determine products that are in demand, and (2) screening of forest inventory data to identify resources that might suit U.S. market requirements.

U.S. Forest Product Imports

A starting point for determining potential wood products exports is an examination of U.S. import statistics. A quick overview of U.S. imports can be obtained from the annual "Yearbook of Forest Products" compiled by the Forestry Department of the Food and Agricultural Organization of the United Nations (FAO 1981). The yearbook contains information on the volume and value of trade, the direction of trade, and the unit values of trade for some commodities. Because each yearbook contains data for the preceding 12 years, competitive supply regions can be identified and an evaluation of trends can be made. However, the level of aggregation is quite high.

For more detailed information on specific products, an investigator will need to examine U.S. information sources. A useful introduction is to examine previous evaluations of U.S. wood products imports. Two sources which describe products and

Table 1. Import data reports.

Report No.	Classification	Codes	Arrangement
FT-135	Schedule A	1,2,3,4,7 digit	Commodity classifications and totals
FT-150	Schedule A	1,2,3,4 digit	Commodity by country of origin and method of transportation
FT-155	Schedule A	1,2,3,4 digit	Country by commodity and method of transportation
IM-171	End-Use	1,2,3,4 digit	Country by commodity and commodity by country
FT-210	SIC-based	8 digit	Commodity by country of origin
FT-246	TSUSA	7 digit	Commodity by country of origin
FT-990	Schedule A and End-Use	1,2,3,4 digit	Seasonally adjusted by country of origin

trends are Siegel and Row (1965) and Stadelman (1979). For more up-to-date information, a direct examination of trade statistics is necessary.

The Bureau of the Census of the Department of Commerce compiles the official monthly and annual import statistics of the United States. Information concerning country of origin, quantity, and value of the imports is gathered from copies of import forms prepared by importers and filed with the Customs Office. The data are compiled according to "Schedule A, Statistical Classification of Commodities Imported into the United States."

The import statistics are made available in a number of reports. The ones most commonly used are listed in Table 1. A catalog describing reports available for purchase or subscription is available from the Data Users Services Division of the Bureau of the Census, Department of Commerce. Recent and proposed changes in classification have been reviewed by Quinn and Sood (1978).

Forest Resources in Developing Countries

Once U.S. import demands have been identified, the next undertaking is to screen host country forest inventory data to

identify potential resources whose development might suit U.S. import requirements. The specific steps to be taken will depend in large part on the adequacy of the information available in the individual countries.

If adequate host country inventory or survey data exist, investigators can identify resources, species, or species groupings that are being imported into the United States. If these species appear to be lacking, further study of other species may be required to determine if they possess characteristics that may suit U.S. market requirements. In this regard, information on tropical woods from the U.S. Forest Products Laboratory would be pertinent.

If there is little or inadequate inventory information, data will have to be developed by means of forest surveys and related studies. Surveys of different intensity may be required, depending upon country and forest area (Westoby 1962). Low-cost reconnaissance surveys provide preliminary information concerning the location and extent of forest areas. Next in intensity are surveys which develop detailed classification of forest areas, together with estimates of volumes of standing timber and some information about

species and dimensions. Surveys of this nature are generally for national planning purposes and are undertaken or supported by governments. Third are surveys which provide the detail necessary for making management decisions appropriate for assessing export potential. These may provide volume estimates by species and diameter classes over a limited area, and include information on such factors as quality, ownership, and availability. Alternatively, they may focus intensively on only a single or a few species over a broad area.

Sources of information to assist in conducting surveys of each intensity are available. For example, information from the remote sensing programs of the National Aeronautics and Space Administration are useful for reconnaissance surveys (de Steiguer 1978). The FAO has developed information to assist national planning surveys (FAO 1971). The USDA Forest Service survey of Puerto Rico provides valuable information about conducting tropical forest surveys (Birdsey and Weaver 1982).

MARKETING

The problems associated with getting wood products to the U.S. market have been among the most difficult to overcome for forest products exporters (Gregersen 1971). Of particular importance are problems associated with production, transportation, market agents and trade barriers.

Production

If the product to be exported to the United States is being produced for other foreign markets or for domestic consumption, the problem is one of expansion. When the product is not currently in production, however, the question arises as to whether it is physically feasible to produce it, aside from the question of economic feasibility. The investigator will need to appraise the feasibility of harvest, manufacturing, and overland transportation to a port. Among the elements to be considered are the availability of skilled labor, equipment, and adequate infrastructure. The types of transportation available and the suitability of ports for handling various products may

strongly influence the location of production facilities.

Transportation

The cost of ocean transportation is a crucial variable in determining the competitiveness of wood products in the U.S. market. Ocean transportation can account for a third or more--depending upon the product--of the delivered cost (Clark 1982).

Physical distance is not the only variable in determining shipping costs. Rates can depend on the volumes being shipped; return cargo capacity utilization; and the type of shipping used, such as conference lines, tramp ships, and chartered vessels. The development of specialized ships and port facilities, for example, has helped to reduce per unit costs of shipping wood chips (Hanaya 1975).

Transportation costs can be estimated from a variety of sources. For example, liner conference rates are maintained by the United States Maritime Administration. Parties actively involved with the shipping process are also potential sources, such as shipping agents and importers. In addition, a rough indication of transport costs for forest products can be determined from the difference between cost-insurance-freight (c.i.f.) import values and free-on-board (f.o.b.) export values contained in the FAO yearbook.

Market Agents

To sell imported wood products successfully in the United States generally requires the cooperation of a market agent. Specific information identifying market agents and the functions they perform can be determined in cooperation with the Imported Hardwood Products Association (IHPA) and individual importers. This will allow the exporter to select the distribution channel most appropriate for his situation, or to match different distribution channels to his array of alternatives.

The IHPA is an international trade association whose primary members are U.S. companies engaged in the importation of lumber, plywood, veneers, flooring, and other converted products. Membership also

includes allied industries such as steamship companies, port authorities, banks, and law firms with an international interest, as well as overseas companies and export associations who are suppliers to the U.S. industry (Evans 1980).

The IHPA has been active in reducing barriers to the importation of wood products. It has assisted in such areas as improving lumber inspections and working to reduce duties on imported wood products.

Trade Barriers

Tariff and nontariff barriers can shape the flow of products to the U.S. market. The primary tariff barriers of concern to potential exporters are duties on imported wood products. Tariff rates can be obtained from the United States International Trade Commission (USITC), which publishes the "Tariff Schedule of the United States Annotated" (TSUSA). Import commodities are classified according to eight schedules, with wood products covered in Schedule 2 - Wood and Paper; Printed Matter.

The ITC also publishes summaries of tariffs and trade information that would be extremely useful to potential exporters in the developing countries. These reports describe the U.S. market, world trade, and conditions of competition between domestic and foreign products, as well as U.S. tariff treatment and other barriers to trade. The summaries are cast in terms of the eight schedules of TSUSA. Four summaries have been published to date in Schedule 2, covering hardwood plywood (USITC 1978a); wood doors (USITC 1978b); lumber, flooring, siding (USITC 1980); and softwood veneer and plywood (USITC 1981). In addition, the commission issues updated statistical tables and industry status reports as appropriate for the individual summaries.

The USITC summaries also describe non-tariff barriers. As tariffs have been reduced as a result of trade negotiations under the General Agreement on Tariffs and Trade, the impacts of nontariff barriers have become of greater concern.

Nontariff barriers are any public or private measures, other than tariffs, that

restrict imports. They include control measures in the exporting country (such as log export bans), as well as those in the importing country (such as quotas). The major categories of nontariff barriers are (1) specific limitations on trade, (2) customs and administrative entry provisions, (3) standards, (4) government participation in trade, (5) nontariff charges on imports, and (6) others, such as voluntary export restraints. Ferguson and Lloyd (1980) discuss some forms of nontariff distortions affecting international trade in forest products. Also, Turner (1983) formulates a theoretical framework which can be used to interpret the price effects of voluntary export restraints on trade going to the United States.

ASSESSING ECONOMIC FEASIBILITY

Preceding sections have described demand and technical aspects which must be considered for assessing the possibilities of exporting wood products to the U.S. market. To complete that assessment, the costs of supplying wood products must also be estimated in order to determine economic feasibility.

Costs are those of harvest, manufacture, inland transport, and handling to prepare the products for export. These must be combined with the overseas transport and other exporting costs to derive figures comparable with sales prices in U.S. markets.

The cost data are needed not only for estimating production costs, which will vary with the price of labor and other inputs, but also for checking project scale against the availability of funds and the size of the market (Westoby 1962). Technological indivisibilities may prevent the adoption of some processing techniques at less than a certain minimum scale, which might turn out to be too large relative to the market and to the available funds.

Familiarity with analysis techniques and data requirements is necessary before actual collection of cost information is undertaken. The FAO has compiled guidelines for appraising economic possibilities, such as assessment of logging costs from forest inventories in the tropics (FAO 1978) and economic analysis of forestry projects (FAO 1979).

Financing, of course, can still be an obstacle even when the projects are economically feasible. However, in addition to conventional sources of financing, AID is considering making selective investments itself through a variety of financial and investment modes (U.S. AID 1982a). Other sources of funding include those listed by Christophersen et al. (1982) and Pease (1982).

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ANALYSIS OF FINANCIAL INCENTIVES PROGRAMS TO ENCOURAGE FORESTRY DEVELOPMENT ON PRIVATE LANDS IN LATIN AMERICA

Clifford A. Hickman

BACKGROUND

Latin America, defined here to include Central and South America as well as the Caribbean basin, contains a significant portion of the world's estimated timber resources. Recent figures suggest that the region contains about 10 percent of the world's commercial forest land and 6 percent of its commercial growing stock (World Wood 1982).

The United Nations Food and Agricultural Organization (FAO) has projected that forest product requirements in Latin America will increase dramatically by the mid-1990s, based on anticipated changes in population and income (Contreras 1980). Specific predictions, by comparison with the mid-1970s, are:

1. Requirements for paper and paperboard will nearly treble.
2. Requirements for sawnwood will expand by one-half.
3. Requirements for wood-based panels will show an increase similar to that for paper.
4. Consumption of fuelwood will grow about 60 percent.
5. The aggregate annual consumption of roundwood will increase from approximately 290 million m³ to 470 million m³.

It is estimated that, on the average, US \$3.2 billion would have to be invested annually to insure that these increased wood requirements could be completely satisfied with wood produced within the region; that US \$1.5 billion per year would be needed to increase existing processing capacity; and that US \$1.7 billion per year would be required to replace harvested forests and obsolete industrial installations. If it is assumed that the region seeks only to maintain a constant ratio of imports to total consumption, investment requirements decline sharply

but would still likely exceed US \$2.5 billion per year (Contreras 1980).

These projections indicate that Latin America's forest-based sector has significant development potential. However, unless its governments act to create the proper environment, the necessary investments to realize this potential will probably not materialize.

OPTIONS FOR ENCOURAGING DEVELOPMENT

The public sector can seek to achieve forest development in essentially three ways:

1. Public ownership. Under this approach, government assumes complete management control of the forest resource. Long-term planning is facilitated and complete policy implementation is given a high degree of assurance. However, a bureaucracy can emerge. In addition, monopoly ownership may not encourage the initiative, innovation, or flexibility needed for efficient operation.
2. Public regulation. Under this approach, government seeks to compel private actions by mandating certain types of performance. Private ownership is continued and a relatively high degree of policy implementation is assured. Restrictions may be resented, however, and create controversy. Furthermore, regulation tends to be rigid, does not encourage compliance beyond required levels, and may necessitate creation of an elaborate enforcement system.
3. Public cooperation. Under this approach, government seeks to stimulate desired performance by putting private decisionmakers in the position where it is in their best interest to behave in the manner sought. While private ownership is

maintained and the onus of regulation avoided, there is less assurance that policy goals will be fully achieved (Nelson 1972, Guess 1981).

DEVELOPMENT ACTIVITIES IN LATIN AMERICA

Compared with other parts of the developing world, Latin America has a relatively large proportion of its forest resource base in private ownership (Schmithusen 1981). Most of the region's governments have emphasized cooperation--and to a lesser degree, regulation--as a means of pursuing their forest-sector goals. Of the many possible types of assistance programs, the use of financial incentives has been particularly widespread. This includes such measures as cost sharing, long-term loans at favorable interest rates, tax exemptions and other preferential tax systems, price guarantees, and low-cost insurance. A preliminary review of the literature indicates that Argentina, Brazil, Chile, Costa Rica, and Uruguay have implemented incentives systems. Key provisions of these programs follow.

Argentina. In 1977, as part of its National Forestry Plan, Argentina enacted Law No. 21,965 to encourage the establishment of forests on acres not previously forested. The statute authorizes subsidies to cover approximately 50 percent of the cost of planting fast-growing species (World Wood 1981).

Brazil. In 1966, Brazil enacted a statute permitting private forest land-owners to deduct site preparation, planting, and management costs from their normal income tax liability (Murphy 1979). The law, which is applicable to the first 5 years following stand establishment, originally limited the deduction to 50 percent of total taxes due. Since that time, however, the percentage has been gradually reduced (Rudolph et al. 1978).

Chile. In 1974, Chile enacted Decree Law 701, now 2565, authorizing the payment of subsidies to cover up to 75 percent of the cost of planting and administering lands not occupied by a forest immediately prior to establishment of the new stand (Husch 1982). To qualify for the subsidy, private owners must register their land as being destined for permanent forest production.

Costa Rica. Costa Rica passed a comprehensive forestry incentive bill in 1978. The legislation provides for a two-pronged attack on investment capital deficiencies. First, it permits forest proprietors to deduct reforestation costs from taxable income. Second, it obliges the national banking system to help finance tree farming, nurseries, and other forestry projects (Guess 1981).

Uruguay. In 1968, Uruguay enacted Forest Law 13.720 which exempts the forest industries from paying taxes on consumable goods imported for use by their workers. In 1979, decrees were issued stipulating that the national bank must make credit available for forestry investments. The most important piece of legislation aiding development of the nation's private forestry sector, however, is that which offers tax incentives to encourage afforestation (White and Pou 1980).

EFFECTIVENESS OF DEVELOPMENT PROGRAMS

Programs aimed at achieving forest development, irrespective of their nature, will entail certain costs. These may take the form of direct outlays for administration and enforcement or, as is the case for many of the incentives which have been adopted in Latin America, they may take the form of "tax expenditures" (i.e., revenues foregone). In either event, since costs are incurred, it is important that public policymakers periodically evaluate program effectiveness. Such analyses provide the only means of determining which assistance programs produce benefits that exceed costs.

PREVIOUS WORK

In most of the Latin American countries where financial incentives have been adopted, some attempt has been made to evaluate program performance. Typically, however, these efforts have not extended beyond the compilation of statistics on accomplishments. For example, millions of hectares were planted during the decade of the 1970's because of the reforestation/afforestation incentives of both Brazil and Chile (World Wood 1980, Husch 1982). These figures are impressive, and in view of the fact that participation is essential to program success, they are an

indicator of satisfactory performance. However, a rigorous policy analysis would have to consider factors other than participation.

A cursory search of the literature indicates that Brazil's incentives program is the one to have been analyzed in the most depth. Veiga et al. (1972) reported that reforestation activities stemming from the program had created a relatively large number of jobs for the funds expended and that these employment opportunities were being created in rural areas where they are most needed. Beattie (1975) used benefit-cost analysis to show that the program was financially sound, at least in the sense that direct revenues exceeded direct outlays at the assumed 8 percent alternative rate of return. Due to difficulties in quantifying important secondary benefits and costs, however, definitive conclusions regarding the program's overall economic impact could not be reached.

Berger (1980) studied the effects of tax incentives on reforestation activities in the state of São Paulo. Investment analyses revealed that the tax concessions were highly profitable to investors when only their costs were considered. Profitability decreased when actual government costs were added to investors' costs, but returns remained positive. Berger therefore concluded that the incentives could be reduced while still permitting private investors to realize adequate rates of return.

Finally, Stevens (1980) reported on the results of a government study showing that the program was creating regional imbalances between the supply of plantation timber and the industrial capacity to absorb that supply. Also on the negative side, it was felt that the present administrative system was imposing unnecessary burdens on forest development projects. On the positive side, the investigation showed that Brazil had achieved greater self-sufficiency in meeting its wood requirements. The program also has apparently increased Brazil's capability to improve its foreign exchange status through the exportation of wood products.

CURRENT RESEARCH NEEDS

There exists a need to evaluate, for a selected set of Latin American countries,

the effectiveness of existing public financial incentives programs and to make appropriate recommendations for improvements or adaptation elsewhere. More specifically, such a study should seek:

1. To identify which Latin American countries have enacted financial incentives and to describe the programs adopted.
2. To select a subset of countries/programs for detailed analysis.
3. To evaluate the effectiveness of the programs chosen.
4. To formulate recommendations on how to improve the effectiveness of those financial incentives.
5. To develop recommendations for initiation of specific types of financial incentives programs in selected Latin American countries which currently have no such programs. These recommendations should be limited to countries having a significant forestry sector and should be structured in terms of economic and political feasibility. They should also be specifically tailored to the forest economy and private ownership attributes of the targeted countries.

The results of the study will thus prove useful, not only to the governments of those countries included in the analysis, but also to the governments of other Latin American countries which desire to use financial incentives to stimulate their forestry sectors. In the first instance, the findings will point to potentially fruitful ways in which to modify existing programs. In the second instance, while it must be recognized that programs cannot simply be taken from one country and applied in another, the findings may suggest potentially rewarding new incentives techniques.

Although statistics on program accomplishments would have to be compiled and analyzed, the proposed study would be basically nonquantitative in nature. The first step would be to identify the Latin American countries that have financial incentives and to describe their programs. This could be done using information from

two sources: the existing literature, including such FAO publications as "Food and Agricultural Legislation"; and contacts with knowledgeable individuals in the United States, Latin America, and elsewhere. Once this information has been collected and compiled, a subset of programs/countries could be chosen for detailed analysis. To keep costs from becoming prohibitive, the number of countries selected should be kept small. Several variables should be considered when making the program choices: (1) the relative significance of the forestry sectors in each country; (2) the emphasis placed by the various governments on retaining and encouraging private forest ownership and control; (3) the nature of each nation's existing financial incentives.

The performance (i.e., effectiveness) of those programs selected for detailed study should be evaluated using data from a variety of sources. These could include previous studies; available statistics on program accomplishments in relation to stated program goals; and mail, telephone and/or personal interviews with both program administrators and participants. Borrowing from the analytical frameworks suggested by Clawson (1975) and Worrell (1970), the following criteria should be considered during the evaluation process: (1) operational and administrative practicability, (2) social and cultural acceptability, (3) economic efficiency, (4) economic welfare and equity, and (5) spill-over effects (i.e., probable environmental consequences). The results of the policy analyses could then be used to recommend how program performance may be improved and/or adapted elsewhere. In structuring these recommendations, care should be exercised to ensure that they are feasible from a biological standpoint--and compatible with the political and economic philosophies of each government.

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